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ORIGINAL COMMUNICATIONS.

PATHOLOGY AND TREATMENT OF HEMORRHOIDS.

BY PROF. N. R. SMITH.

THE history and treatment of hemorrhoids does not, it is true, furnish much opportunity for heroic surgery, but should be a subject of great interest to the general practitioner, because of their frequent occurrence, their occasional intractable character, and the formidable sequelæ in which they sometimes result.

Hemorrhoids are small tumors engorged with blood, situated in the rectum, just within the anus, on its verge, or exterior to it.

The term is appropriate, though some of them become ultimately bloodless and hard. Generally there is more or less blood discharged from them, usually at stool; but sometimes, though much engorged, they do not bleed, and are vulgarly termed "blind piles."

There are manifest anatomical reasons why bloody tumors should be more common at the lower extremity of the rectum than in other regions of the body. In the first place, the part is dependent, and blood gravitates to that region

as it does to the spermatic cord and to the veins of the inferior extremities. This gravitation is increased by the expulsive efforts at stool, urging the blood into the part. The mass of fæces in the lower bowels, before expulsion, retards the return of blood from the part.

The portal veins, which, in part, return the blood from this region, are without valves, and hence liable to become engorged and varicose. The rugæ into which the mucous membrane of the bowel is folded, yield to the engorged vessels and favor the development of hemorrhoids.

The sphincter muscle, acting sometimes spasmodically, constricts, and often strangulates hemorrhoids when they are protruded.

According to my observation there are three varieties of hemorrhoids: 1st, the Erectile; 2d, the Varicose; 3d, the Condylomatous.

The first variety, or the Erectile, are by far the most frequent. The causes of this form of hemorrhoids are, in part, the anatomical circumstances alluded to above. Age is concerned in the causation of the different forms of hemorrhoids. The erectile variety is more common in early life (not, however, in children) in persons plethoric, and of sanguine temperaments. Neglect of exercise, occupations involving the necessity of standing, or sitting many hours of the day or night, promote their formation.

But, of all the immediate causes of this variety, constipation of the bowels is undoubtedly the most efficient. It operates in three ways. The indurated contents loading the bowel mechanically retard the return of blood. Such fæces are also expelled with effort and difficulty, by which the vessels of the part are strongly injected with blood; and, lastly, the hardened fæces rasp and irritate the vascular membrane.

Such articles of food as promote the formation of hard and rough fæces, as well as indulgence in the use of an

excessive quantity of strong food, are among the causes, as inducing plethora and fullness of the bowel.

Some of the remedies employed to obviate constipation are also among the causes. Aloetic and other resinous purgatives, and the unskillful use of the injection pipe, provoke their formation.

Parturient women are subject to hemorrhoids, manifestly caused by the pressure of the fœtus on the hemorrhoid vessels.

The erectile variety of hemorrhoids, which is by far the most common, commences with a sense of fullness just within the verge of the anus, and of the presence of a foreign substance which can not be expelled, and which is aggravated by ineffectual efforts. There is sometimes pain, and a few drops of blood are often discharged. When the effort at defecation is over, there can be felt and seen a small red tumor, of the size of a pea, protruding from the anus. In a few minutes this recedes and disappears, especially if water be used.

From day to day this protrusion increases, and other small tumors are added. Their return becomes more difficult, and is followed with less complete relief. The patient has to press them in with his fingers, and he renders this more easy by assuming the recumbent posture.

They now bleed more or less at each stool, florid blood spirting from them in a fine stream. The bleeding generally reduces the engorgement for the time, and renders their reduction easier. Sometimes they bleed internally, and a quantity of fluid, or coagulated blood is expelled at each stool, rendering it a little difficult to distinguish the malady from hemorrhage of the bowels.

This variety, however, does not always bleed, even though greatly engorged and inflamed. They are then vulgarly termed "blind piles," and are even more painful and difficult to return than when they bleed. They now protrude in

clusters, like a bunch of grapes, and become tensely constricted by the sphincter, the action of which is rendered more persistent by the spasm which is excited in it. The return of them now is difficult and painful, yet the patient often learns the art of returning them more promptly than can the surgeon. There are cases, however, in which their return and retention become for the time impossible. Sometimes, when pressed up with difficulty, an irresistible expulsive effort is excited, and they are forced out again the moment the pressure is removed.

Sometimes the constriction by the excited sphincter becomes so great that the hemorrhoids are actually strangulated, become livid and insensible, and finally slough off. I have witnessed this result in several instances, and have not seen any disastrous consequences to follow. This may be regarded as nature's occasional method of curing the disease, and is analogous to the action of the ligature of the surgeon.

When they thus slough off, an ulcer is of course left, and this is replaced by a cicatrix which contracts rigidly, and not only obviates the further production of hemorrhoids, but sometimes causes a stricture of the anus difficult to overcome.

It is by no means uncommon for the urinary organs to become disordered in their functions, partly by pressure, but more especially by participating in the irritation.

Retention of urine is often the result, with the necessity of using the catheter. The fullness of the bladder reacts and aggravates the hemorrhoids.

If these tumors continue for a few days, it is not uncommon for them to assume a livid appearance and firmness to the touch. This is attributable to the formation of a firm dark clot in the centre of one or more of the tumors. If they are lanced at this period, a dark clot, pear-shaped in form, and of the size of a pea or larger, is discharged. If

this be not done the clot may ultimately be absorbed, or may cause the tumor to assume the indolent and non-vascular condylomatous form.

On dissection, this variety of hemorrhoids is found to be composed of a vascular tissue, exceedingly like the erectile of the corpus spongiosum. It is for this reason that I have followed the example of some others in terming them "Erectile." They often, however, contain some dilated veins, and these, perhaps, furnish the cells in which the coagula, already spoken of, are formed.

The second variety of hemorrhoids I term the Varicose, because they are composed of dilated veins, with very little solid tissue. They much more frequently occur to aged persons than to others. These tumors present a dark and livid appearance, and are very elastic and compressible. To the touch they feel, as might be expected, like varicose veins of the cord or lower extremity. They are completely emptied by pressure, but instantly refill. These rarely become inflamed or irritable. They discharge blood more freely at stool than the other varieties, that fluid, of venous character, pouring from them sometimes in a copious stream, as the expulsive effort is made. When they are compressed, or the blood recedes from them, as the patient assumes the recumbent posture, the tumors disappear.

This form of the disease is almost exclusively incident to persons advanced in life, as is the varix in other regions of the body. In old persons the veins, compared with the arteries, are large, contain more blood, and transmit it more sluggishly.

Sometimes the blood coagulates in these tumors, and thus is brought about a spontaneous cure, or they become condylomatous.

This form of the disease is often dependent in part upon a diseased condition of the liver. By the repeated and copious discharges of blood which take place, they often

seriously, or fatally, affect the constitution, as do other hemorrhages. Anemia and dropsy may be the result.

The third variety of hemorrhoids is the Condylomatous or Warty. They are the sequels of the two other varieties, more especially of the first.

When the erectile tumors remain long engorged—often inflamed and, perhaps, stuffed with coagula—their contents become organized, indolent,non-vascular, and hard. They are then solid to the touch, pale, and insensible. But, although no longer sensitive in themselves, yet, by the mechanical irritation which they cause in parts around, they keep up disease, and provoke the formation of other erectile and sensitive tumors. They are pale, and, if you pierce them, discharge no blood.

The diagnosis of hemorrhoids is ordinarily not difficult, and yet mistakes are sometimes made. We must never allow ourselves to be influenced by what the patient may pronounce in regard to his disease. All maladies of the anal region are apt to be regarded by them as piles, and they come to us for something to relieve them. A patient applied to me a few days ago "to be cured of piles." He had sanious discharges, and mechanical impediment. He had taken remedies for piles from other physicians. I found, on examination, that he had cancer of the rectum.

Fistula, even when external, is sometimes mistaken for piles. When the fistulous orifice is within the rectum, the error is not surprising. The truth, however, is easily ascertained by the use of the finger and the speculum, and by the history of the case.

Fissure of the anus is often mistaken for hemorrhoids. I have known this malady to be treated for months as hemorrhoids. There is, indeed, usually a small tumor on the margin of the fissure, which contributes to the irritation that characterizes that disease. The extreme tension of the sphincter, the very great and persistent pain which follows

an evacuation, without protrusion, will enable the practitioner to distinguish.

In the treatment of hemorrhoids, let us first consider that of the erectile variety. If the disease is recent, and the causes manifest, there is but little difficulty. Commence with the administration of a saline aperient. Then, every other day, give sulphur, a heaping teaspoonful, in syrup or milk. Should this be inactive, give the following:

R—Sulphur, lot..... ℥ j
Fol. Sennæ pulv..... ʒ j
Ol. Fœnic.....gtts. xx

M. and f. pulv.

S.—Give a heaping teaspoonful every other night.

The parts must be bathed, three or four times a day, with cold water, and especially after stool.

As the indulgence of the appetite in every variety of rich and unwholesome food will have been in most cases the principal cause, the patient must be restricted to a simple diet.

Let him take animal food but once a day, in small quantity, and without condiments. Boiled onions as an article of food are productive of soft and easy passages. Stewed fruits may be used as dessert.

The patient may exercise moderately on foot, but when at rest had better assume the recumbent, rather than the sitting, posture.

This treatment will be very sure to relieve incipient cases; but, if not, apply the following unguent:

R.—Ung. Cetacei..... ℥ ss.
Pulv. Gallæ.
Pulv. opii.....aa ʒ ss.

M.

S.—Apply externally, and introduce within the sphincter a small quantity twice a day.

The following suppositories are very efficient:

℞—Butyr. Cacao.....Q. S.
Tannin.....ʒ ss.
Opii.....ϑ ss.
M.—d. and f. Suppos.....X

S.—Insert one, morning and night, completely within the sphincter.

But, in those cases in which the disease has persisted for some time, the tumors, large, inflamed and irritable, disposed to protude with spasmodic force, and are returned with difficulty, more active measures are required. If the bowels are costive a saline aperient must be given, and an emollient enema, to secure its prompt action.

If the tumors are protruded and strangulated, causing great distress, they must be at once returned, without waiting for the action of medicine. To effect this, apply for a few moments cold water or crushed ice, to repel the blood with which they are engorged. Then, compressing the whole mass with the fingers of both hands, if necessary, press them up within the sphincter. To resist the expulsive efforts which will be provoked, keep up pressure for a few minutes on the anus with the fingers, or better, with a small sponge dipped in ice water. This pressure I have sometimes kept up for hours, with a perineal bandage attached before and behind to a split bandage passed over the shoulders. The use of chloroform will sometimes greatly facilitate the reduction.

When the parts are highly inflamed and productive of symptomatic fever, free venesection is demanded. Leeches may also be applied to the verge of the anus, in aid of the lancet. Freezing the part by the spraying apparatus is recommended by some, but I have never employed it.

There are many astringent applications which are employed by surgeons in these cases, either in the form of lotion or unguent, such as the Acetat., Plumb., Acid Gallic, the Persulph. Ferri, &c.

In most cases of recent origin the above means will effect a cure, and prudent living will obviate a return.

Sometimes the return of the tumors is rendered impossible, and their irritable condition kept up by the presence of coagula which they contain, as described above. This is known by the hardness and livid color of the tumor, and the impossibility of its being returned.

In these cases the tumor should be freely lanced and the coagulum discharged. While I have been writing this artitle, I have been called to a lady suffering from disease of this form. I passed a keen lancet through the tumor, and there was immediately discharged a black coagulum as large as the end of one's finger. I have never known serious hemorrhage to result from such incision.

The above means employed in the treatment of hemorrhoids are curative, if employed early, but are only palliative when the disease has become chronic and a permanent hypertrophy has become established. Other means, then, must be employed to effect a permanent and radical cure. The tumors must be, by some means, removed.

Excision is the expedient that first presents itself. But for one circumstance, the danger of hemorrhage, this would be the shortest and most effectual expedient. This has been in times past much practiced, and often with success. But the occurrence of many fatal cases of bleeding has deterred the modern practitioner. Sir Astley Cooper's cases are well known to the profession, and, were all surgeons as candid, we should have many more such beacon lights. Were the bleeding part so located as to be accessible to our remedies, there would be no risk; but, when a hemorrhoidal tumor has been cut away with the knife, the wounded surface retires within the sphincter, and is reached with great difficulty. Blood flows into the rectum. After a time the patient is seized with tormina, and a copious discharge of fluid and coagulated blood takes place, causing

prostration and faintness. After an hour or two this is repeated, and fatal consequences not unfrequently follow.

Dupuytren often excised them, but immediately applied the actual cautery. He spoke lightly of the danger and of the pain and inflammation caused by the cautery.

The necessity of resorting to such an expedient is a sufficient objection to the operation.

The ligature is the next expedient to be considered. In this mode of extirpation it is not necessary to ligate singly the whole cluster of tumors. It is scarcely ever necessary to include more than two or three of the largest. The bowels should first be emptied by a cathartic, and, when the expulsive effort has forced out and rendered prominent the tumors, the threads are to be applied. They may be composed of silk or linen. The tumors generally having an obscure neck, there is commonly no difficulty in applying the thread, but sometimes it is necessary to seize and draw them out with forceps. When the tumors are large and fleshy it is better to arm a curved needle with a double ligature, and transfixing the base of the tumor, to draw the threads half through, and then, dividing them at the eye of the needle, to tie one thread on one side and the other on the opposite. A slip knot should be employed, that the ligatures may be withdrawn in case of intense irritation. During the operation the patient may be under the influence of chloroform.

In case of high irritation the ligatures may be removed, but if they have been properly applied, and they have been on for three or four hours, the tumors will have their vitality destroyed, and will slough.

The double canula, with silver wire, as used by Prof. Physick, is, in my opinion, the best apparatus for the ligation of hemorrhoids. The noose must be drawn tightly, and allowed to remain for from four to six hours, and then disengaged. At best, however, the ligature is a severe and

painful remedy, and not unfrequently followed by intense intestinal irritation and inflammation, sometimes by symptoms of strangulated hernia. Some years past I lost two patients after the application of the ligature, by inflammation of erysipelatous character, propagated along the intestine.

I have, not long since, practiced the following expedient in cases of old and fleshy hemorrhoids. I have saturated a loose thread with liquor potassæ, and, arming one extremity with a needle, have transfixed the base of the tumor and slowly drawn it through. This I repeated transversely. The circulation in the pile was thereby destroyed, and the tumor perished.

The Ecraseur is much employed in the extirpation of hemorrhoids by the French surgeons, and to some extent by the English and American. It is claimed that it is not followed by hemorrhage, and that the lacerated character of the wound is not adverse to the healing process. Such is not my opinion. I have recently witnessed the amputation of the penis by Dr. A. P. Smith, in which that instrument was employed according to the most approved method, and yet I never before witnessed so much hemorrhage from the amputation of that organ. Many ligatures were required to arrest it.

The most efficient of the curative means employed in the treatment of this malady is Nitric Acid, used as a caustic, first employed by Dr. Houston. It is applied pure, and by means of a smooth stick, or a glass rod. If the parts are very sensitive, the surgeon should at first touch only the external and most prominent. On the next occasion, that is after two or three days, he touches the remainder, applying it till he sees the mucous membrane become whitened. In bad cases, other applications may be necessary.

The effect of this caustic is to destroy the mucous surface to greater or less extent. This exfoliates, and a cicatrix

results which, contracting as all scars do, diminishes the extent of the mucous surface, compresses the subjacent vascular tissue, and thus obliterates the disease.

The application of the acid, though sometimes severe, is productive of less pain than might be expected. I have applied it from day to day on persons who have kept about their ordinary avocations. Generally, it is better to confine the patient to the recumbent posture for two or three days, and to soothe the part with anodyne cataplasms. This use of the acid is very generally superseding the ligature.

The second variety of hemorrhoids, the varicose, which I have described above, must be more cautiously dealt with. Excision is not to be thought of, nor would the ligature be less perilous than it is to varicose veins in other regions of the body. Astringent applications may be employed with safety, and will palliate and arrest, if not cure. The best of these are tannin, gallic acid, and the persulphate of iron. In bad cases the nitric acid may be cautiously employed.

Pressure will be found extremely useful, effected by a compress, kept applied by means of an elastic perineal bandage attached to the two extremities of a scapulary bandage, passed over the shoulders like suspenders.

A wooden tampon, or plug, makes very efficient pressure. It should be of the size and form of a man's thumb, though a little more bulbous toward the extremity. It may be macerated for a time in dilute liquor of the Persulph. Ferri before being introduced. Of course it can be worn only for two or three hours at a time.

As to the treatment of the condylomatous variety but little need be said. They are insensible and bloodless, but require removal, as they inflict irritation and provoke the formation of other tumors. They may be safely removed with scissors or the knife.

It is the belief of many surgeons that hemorrhoids often result in fistula. In a practice of fifty years I have never witnessed such a result.

REMARKS ON GENERAL THERAPEUTICS.

BY A. B. ARNOLD, M. D.

NO BRANCH of medical science offers so many weak points to criticism as general therapeutics, for the principles of treatment, in the vast majority of diseases, must necessarily partake of all the imperfections of the collateral studies, and particularly reflect the changing phases of pathological theories. Being thus the last in the series, it can certainly never outstrip the others; and this circumstance alone makes it apparent that the principles of general therapeutics can not be otherwise than exceedingly small in number, and very precarious. A good criterion of the value of comprehensive rules for the choice of medicines is afforded by the text books, which are found to adopt different bases for the classification of remedial agents. Mialhe, for instance, classifies medicines in accordance with their chemical effects on animal fluids and tissues, whilst Wood ranges them in the order of their physiological action. It is, however, acknowledged that, in the present state of medical science, any system of therapeutics would be found obnoxious to numerous objections. In fact, the very complexity of the nature of disease, and the almost insuperable difficulties met in therapeutical experiments, would seem to preclude the idea of being able to generalize the properties and relations of medical substances.

The greatest obstacle to a satisfactory arrangement of medicines, as already observed, is undoubtedly the fluctuation of pathological theories. Although the history of medicine, in modern times, is replete with grand and all-important discoveries, and full of instances showing that the proper method of scientific investigation prevails, which is the indispensable condition of progress in all experimental sciences, yet, in the case of pathology, the deductive method

of reasoning is still in the ascendant, with all its natural consequences of giving birth to immature productions. The old pathological theories continue to appear under various names, though much improved in matter and form. Perhaps it may be of some advantage, in the presence of the uneasy feeling which now exists concerning the fate of some favorite methods of treatment, to recall to mind analogous periods in the history of medicine when similar apprehensions were experienced in the profession. Without going further back than the system of Brown, it is interesting to notice what essential modifications in practice this bold theory of diathesis demanded. Muscular irritability, which was then the great discovery of the period, is assumed to be the source of vital phenomena, and its changes the cause of disease. Sthenia, asthenia and indirect asthenia denote, in this hypothesis, the varying quantities of irritability, and form the three classes of diseases. Brown believed that irritability is one of the imponderable agents which may be increased or diminished in the human body, and he consistently required of the physician to employ stimulating substances for the correction of its quantitative changes. All remedies, according to this view, act by virtue of their stimulant properties; and, it was further maintained, that nearly every disease was of an asthenic character. Rasori, a full believer in the theory of Brown, asserted, on the contrary, that the majority of diseases are sthenic, and, in compliance with this conviction, recommended the counter-stimulant plan, and cured by venesection and tartar emetic.

The system of pathology of Broussais, celebrated for the fresh and fruitful impulse it gave to researches in morbid anatomy, wrought, in its time, a great change in the opinion of the action of remedies. This school of medicine taught that every disease implied the presence of some degree of congestion or inflammation, and that the slightest morbid

appearance of the intestinal mucous membrane caused the most violent disturbance of the whole system. A pathological theory of this kind excludes the admission of essential fevers, or what is more often called zymotic diseases. Therapeutical agents are, therefore, nothing else but antiphlogistic remedies. Then a reaction followed against a doctrine which had entirely ignored the state of the blood. This gave rise to Roketansky's theory of dyscrasia. The school of Vienna, however rich in contributions to medical science, hardly recognized any other pathological condition than blood disease. Neither inflammation nor congestion of the solid tissues were to be dreaded, but excess of fibrin in the circulating fluid—no gastro-enteritis, but albuminous dyscrasy. Again, the practitioner was asked to sift well his principles of therapeutics, since the exercise of his art was to be directed against the pathological processes of exudation deposits and consolidation of extravasated fluids.

Before passing in review a few of the more recent theories of pathology, with reference to their influence on therapeutics, the very remarkable fact has to be noticed that, though at the present time medical science seems to discard the metaphysical entity of a vital force, which used formerly to play such a prominent part in explanation of physiological and pathological phenomena, still their vitalistic nature, variously disguised, is repeatedly conjured up as a pliable hypothesis, and only physiological chemistry has finally banished this ancient spectre from its special field of inquiry. The cause of this retrogade tendency is not difficult to discover, for, in spite of the experimental method now dominant in medical science, there is one problem continually thrust in the foreground, which appears to be incapable of any other solution than a transcendental one. What is life? or its corollary, what constitutes the standard of health and disease? is the question which tempts the coolest heads to indulge in metaphysical speculations.

None of the German writers on pathology use stronger language against the mythics of a vital force than Henle, yet he substitutes in its place what he calls "the typical force." This force he defines to be an operative law, "which determines the forms and reactions of natural bodies, consisting of a plurality of similar individuals." Disease he defines as "a deviation from the normal, typical or healthy process." The latter definition is qualified by the clause, that the term disease expresses not anything added, or standing in the place of healthy action, but rather a modification of it. This latter definition is certainly in advance of the old vitalistic theory, as shown also by the deductions which Henle makes. In using the word "abnormity," as expressive of a diseased condition, the physician merely intends to draw a distinction between a congenital and aberrant organic process. But in describing the state of change in inorganic bodies, he is not obliged to imitate this terminology. For instance, he would not say, that fresh, sweet and flowing water is sick in the state of ice, nor that ice when melting is about recovering its healthy normal condition of water. Disease, in appearance, and in the language of the physician, is an abnormal action, but in reality it is just as natural as health. Pain, in inflammation, is the normal reaction of a nerve when pressed upon under any circumstance whatever. But all the qualifications and the ingenious exposition of Henle cannot atone for the radical error implied in the supposition of a hypothetical force regulating organic phenomena.

In the next place, the cellular pathologies now in vogue are found to contain vestiges of the vitalistic theory. Here, the germinal force monopolizes the whole domain of organic changes. The conflict between solidism and humoralism is once more begun and carried on with all the augmented stock of medical knowledge which the recent acquirements of physiology and histological anatomy have accumulated.

Already attempts at devising a cellular therapeutics testify to the powerful influence exercised on medical men by the great names which advocate this latest phase of pathological teaching.

The greatest novelty, however, in therapeutics is the recommendation of the practice introduced by Todd, of treating fevers and inflammations by the administration of stimulants. In the elaborate and philosophical treatise on the nature of stimulation by Anstie, this author severely criticises and combats the theory of a vital force, which he shows to have vitiated the reasoning of systematic writers on the remedial action of stimulants. Strange as it may appear, this writer expresses his conviction, that chemical research cannot be usefully applied in therapeutics until the question of the general action of remedies has been settled. This prepares us for another edition of the vital force theory, and this time in the shape of an ontological definition of the phenomena of life. Now, it is perfectly legitimate to make use of therapeutical experiment in elucidating questions of physiology and pathology. The results of remedial interference, when closely watched and carefully compared and recorded, are important data for medical investigations. A great number of instances may be collected, where the observation of the undoubted effects of remedial agents tended to throw much light on the obscure functions of organs. The surprise is only this, that Dr. Anstie should have felt the necessity of constructing a theory of the general effects of medicines on the basis of a general theory of life. Who would imagine at the present day, that the clinical study of disease, and the empirical rules of special therapeutics, required the aid of some metaphysical formula? And yet, great truths have sometimes emerged from slighter incidents; and if it shall appear that a new point of view of the action of stimulants reveals a principle of organic processes not previously recognized, or but faintly foreshadowed,

then it would still amount to a great acquisition of medical science, though first announced in metaphysical language. Great injustice would be done to Dr. Anstie if it were asserted, that he had any such ambitious intention in propounding his theory of stimulation. Neither is it probable that so acute a thinker would commit the error he so ably exposed, of assuming the existence of a hypothetical power which, like that of vital force, nobody knows what it is, or where it comes from. But when he sums up all the known and unknown vital powers in the principle of "Individuation," which he borrowed from Coleridge,* he is betrayed in subscribing to an abstraction, though a scientific generalization is urgently needed. In constructing this theory, some characteristic *instinct or tendency* of life, evident in all its manifestations, is selected for formulating its definition; and this is found to be the tendency of "Individuation"—the power which discloses itself from within as a principle of *unity* in the *many*. From this definition of life, which is not claimed to be absolute or exhaustive, Dr. Anstie infers the true action of stimulants; for if the standard of life is "a certain exact balance of various forces," then it is an improper use of the word stimulus to express the cause of excessive action in the body. Hence the use of the word stimulus should be restricted to agents, "which, by their direct action, tend to rectify deficient or too redundant natural action or tendency." The real affinity of stimulants to food is, therefore, incontestible.

Without denying the many practical suggestions of this new aspect of the nature of stimulant action, there is yet no haste for another leap in medical opinion. Principles of therapeutics will hardly be reconstructed in the future without primarily consulting chemical researches with particular reference to tissue change. In connection with this

* It appears that the German metaphysician Schelling first propounded this theory in the exact words used by Coleridge. See an allusion to this subject by Herbert Spencer, in his "Principles of Biology," part 1, ch. IV.

matter, it is profitable to retrace what older writers have said on the action of stimulants. It will be found that much of what is now considered new and striking, had long ago been anticipated, and often more coolly judged. The following passage occurs in the writings of an author already referred to in the previous remarks:

"The function of an organ is the consequence of its form and composition, the latter resulting from the natural metamorphosis of substances. Whatever, therefore, changes form and composition, changes function. This change may be either followed by diminished or increased energy of the normal function. When the modification of increased functional activity takes place, then it has the appearance as if the function had been stimulated, but, in reality, it is only changed. What we call a stimulant or an irritant is an influence which, in modifying the substance, alters its force and operation; and this is true of any physical or chemical influence on organic bodies. * * * The error of conceiving this change as the direct consequence of the stimulant agent consists in the fact, that we overlook the connecting link of physico-chemical alteration of substance."*

MISCELLANEOUS CASES OF RARE LESIONS IN OPHTHALMIC SURGERY.

BY J. J. CHISOLM, M. D.,

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To aid in the present rapid progress of ophthalmic surgery, each worker in this interesting field of investigation considers it his duty to report such cases of interest as may come under his observation, hoping that in some way they may be made available in the elucidation of pathological phenomena. The intrinsic value of the facts deduced from these cases may have escaped the eye of the reporter, and yet be seized upon and vitalized by some close ob-

* Henle, "Rationelle Pathologie," B. I, P. III.

server, seeking, from reported cases, facts to strengthen views not yet promulgated, or to explain phenomena up to the present time enveloped in obscurity. From such reports a missing link in a chain of evidence may be often gleaned, and therefrom valuable deductions may be drawn for the successful treatment of diseases. We know that in the eye, as in other organs of the body, the most varied effects follow the application of one and the same cause. By means of the ophthalmoscope, surgery can bring under close scrutiny the internal portions of the living eye, using, for this purpose, its own dioptric media as a microscope of considerable power. In this way pathological changes in these delicate and intricate tissues can be watched day by day, and from these visible phenomena surgeons are enabled to generalize for distant and deeply concealed portions of the body. From such a standpoint we deem the following cases worthy of record:

The first case reported is of rare occurrence—an eye completely transfixed in its antero-posterior diameter by a sharp instrument, destroying, in time, vision, without affecting the transparency of the media, so that changes in the retina and choroid, eventuating in the loss of sight, could be readily recognized.

No. 1.—*Eye transfixed by a pin, causing traumatic posterior Staphyloma.*

Miss M——, six months since, whilst helping to shake a carpet, felt suddenly a blow upon the eye. To subdue the sharp pain, she immediately applied cold water. Not finding the expected relief, she had the eye examined by a friend, believing that some particle of dust, or other extraneous matter, had been caught between the lids. A bright particle, at first glance, supposed to be a drop of water, but soon found to be the head of a pin, was detected firmly adherent to the surface of the upper lid. When drawn upon,

it lifted the eyelid three-quarters of an inch from the eye; then yielding to more force, a long pin was drawn from the ball of the eye in which it had been buried. The lady had closed her eyes to protect them from the dust which was flying from the carpet. In the act of shaking, a pin had been dislodged from the surface of the cloth, and had been driven forward, point foremost, with so great a momentum that it had transfixed both the lid and the eyeball. The point of the pin entered the eye two lines above the corneal junction with the sclerotic. Avoiding the ciliary bodies and lens, it traversed the vitreous chamber, and perforated the posterior wall of the eye about a line from the temporal side of the yellow spot. At the time, a red dot upon the upper lid was the only visible injury which the eye had sustained. After a few days all uneasiness passed off, leaving the eye apparently as sound as before the accident. Eight weeks after the injury had been received, the vision began slowly and painlessly to fail; and now, at an interval of six months, sight has been so completely destroyed that only a perception of light remains, and that only from a small lateral portion of the retina. An ophthalmoscopic examination revealed a traumatic posterior staphyloma, located near the temporal side of the fovea centralis. It had a sharp rim, over which the retinal vessels were suddenly bent, and then disappeared in the cavity of this posterior sac. This protrusion, evidently of traumatic origin, had, in its gradual formation, encroached upon all the structures in the central axis of the eye, and had partially involved the yellow spot of Sœmmering; hence the gradual and permanent loss of vision. The ophthalmoscope, in this case, showed the uselessness of treatment, although the eye, to an ordinary observer, retained all of its brilliancy.

The following case is one in which the inner tunics of the eye, viz: retina and choroid, were ruptured at a point opposite to and most distant from the seat of the blow:

No. 2.—*Rupture of the Choroid and Retina at the yellow spot of Sœmmering, from a concentrated blow upon the Cornea, not sufficiently severe, however, to disturb its epithelial covering.*

Miss C——, whilst eating fruit with friends, was amused by the throwing about of the seed of the watermelon. By squeezing these slippery seed between the index finger and thumb, they can be projected several feet. A seed thus propelled struck Miss C—— on the left cornea, causing sharp pain and instantly blurring vision in this eye. After three or four days the pain and uneasy feeling had entirely disappeared from the injured eye, but as the vision remained obscured, she sought medical advice. Upon ophthalmoscopic examination, I found a small rent in the retina and choroid, involving the yellow spot. According to the usual gaping tendency in wounds involving these elastic tissues, the edges had receded, showing the white sclerotic in the bottom of the rent. There was no hemorrhagic extravasation in the wound; no abrasion could be detected on the cornea. When examined again, at an interval of some months, the edges of the wound were seen clearly mapped out by a heavy border of pigment, whilst the choroid, for some distance around the lacerated tissues, was undergoing atrophy. From the moment of the accident, a dark cloud occupied the centre of the visual field, and was increasing with the progress of the choroidal atrophy.

The following case shows the necessity of making a careful exploration of the eye, when inflamed, before prescribing medicines for the same:

No. 3.—*A fly imbedded in the cul-de-sac, between the lower lid and eyeball, for five weeks, during which period the eye was under active treatment for inflammation.*

R—— K——, a police officer, has had an inflamed eye for five weeks, supposed to be from a cold taken when ex-

posed on night duty. The eye suddenly became painful, and inflammation soon supervened. Treatment was instituted without relief. When the case was presented to me for examination, five weeks from the inception of the disease, I found the greatest vascularity of the conjunctiva below the cornea, and the patient complaining of most pain when looking downward. In inspecting the mucus membrane of the inferior lid, a foreign body was found lodged in the cul-de-sac, enveloped in a lymphy coating, and surrounded by an area of the greatest congestion. It proved to be a night-bug, which had been lodged for five weeks beneath the lid, and which, by its presence, had excited an inflammation (a trachomatous thickening of the palpebral conjunctiva) not readily controlled, even after the removal of the foreign body. The proper examination of the eye, when first complained of, would have exposed the fly; and with its removal the pain and excitement occasioned would have rapidly disappeared.

The following case is an evidence that, under certain conditions, a foreign body can remain imbedded in the tunics of the eye without annoyance:

No. 4.—*A foreign body imbedded in the sclerotic for six years.*

T—— D——, a machinist, applied for treatment under the following circumstances: Six years since, while hammering a nail, it flew from the board, and gave him a severe blow in the eye. Under the usual treatment, the irritation subsided, and he resumed his employment. Within a few days the eye has become again painful and injected. Upon examination, my attention was called to an elevated black spot on the sclerotic, in a line with the outer canthus and near the border of the cornea. I found this to be a nodule of iron imbedded in the sclerotic, where it had been quietly laying for six years. When turned out of its bed, the cho-

mal was visible in the base of the little cup. An epithelial covering had isolated the metal, and had prevented it from giving trouble. A very small fragment from this mass of metal, if imbedded in the cornea, would probably have induced destructive inflammation of the eye.

The following case exhibits the readiness with which the system, under suffering, accustoms itself to rapidly increasing and large doses of active medicines:

No. 5.—A double glioma (cancerous tumor of the eye) occurring in a child of sixteen months, in which case the child required one hundred and thirty-eight drops of laudanum per day, in connection with a local application of morphia, to secure quiet and a few hours' sleep.

Mary T——, aged sixteen months, a delicate-looking but lively child, was brought to me for treatment under the following circumstances: Four months prior to the consultation the parents of the child observed a yellowish appearance in the pupil of the right eye, and, two months before the case came under observation, a similar tint was visible in the left eye. Upon examination, the right eye was already found somewhat enlarged, the pupil widely dilated, aqueous humor turbid, and the vitreous chamber filled with a yellowish growth. In the left eye, the pupil being dilated and the media clear, an ophthalmoscopic examination revealed a yellowish growth, bulging forward on either side of the optic disc. It was nodulated in character and covered by the normal vessels running over the surface. The general health of the child was considered good. It was not fretful, and could be easily amused. The tumor, in bursting through the cornea, caused, some weeks after the first observation, great restlessness, necessitating the administration of opiates. The dose commenced with was [illegible] three times a day to be increased each [illegible] drop to the dose until

quiet could be obtained. To secure relief from pain, the dose of laudanum had to be increased each day, until, at the end of two months, the little patient required forty-six drops of laudanum as a dose, three times a day. In connection with this heavy opiate, a solution of three grains of morphine to the ʒj glycerine was used as a local application to the protruding tumors. Often not more than two or three hours' rest was secured by this combination of internal and local use of opium. The little patient died from gradual exhaustion five months from the time when first seen. The right tumor had attained nearly the size of the fist, nearly one-quarter the size of the head, and, by its weight, had, for some weeks prior to death, kept the child's head turned to the right side. The left tumor was not larger than a pullet's egg. No hemorrhages of a serious character had occurred from either tumor. All the children of this family, three in number, prior to the birth of this little sufferer, had died of tubercular meningitis. Such was the melancholy history of this family, as given by the parents. No autopsy in this case was permitted, but there were no symptoms indicating the extension of the cancerous growth, by means of the optic nerve, to the brain.

The following case exhibits an extreme susceptibility to the poisonous effects of atropia:

No. 6.—*Poisonous effects from the instillation of atropia in the eye of a child.*

Miss H——, four years old, had had the left eye injured, one year since, by a scissors, which had perforated cornea iris and lens. When first seen, hydrophthalmia had supervened, accompanied by a contracted and adherent pupil, with still, however, a clear cornea and bright-colored iris. A drop of atropine solution, 4 grains to ʒj, was carefully placed between the lids for the purpose of soothing pains complained of in the eye. An excessive secretion from the

lachrymal gland was excited by the presence of the drop and, after a moment, a tear-drop ran down the cheek of the little patient. The child caught the descending drop upon the end of the finger, and was observed by the mother to put the finger afterwards in her mouth. In less than an hour after the atropia had been used the child complained of great thirst, dryness of fauces, hot suffused face, with quick excited pulse. The face remained scarlet for two hours, when all the symptoms gradually commenced to wear off. The parent believed the child attacked with scarlet fever, a disease with the appearance of which she was familiar. Allowing that the drop of the atropia solution, $\frac{1}{120}$ part of a grain, had been again diluted with an equal bulk of lachrymal secretion, and that of the portion wetting the cheek one-half had been caught upon the finger and put into the mouth, the dose taken could not be greater than the $\frac{1}{240}$ part of a grain of the sulphate of atropia, and the poisonous symptoms were promptly developed from this infinitesimal particle.

So much interest is now attached to the physiological, phrenological or psychological study of the integral portions of the brain, and so free has been recently the discussion of Broca's "localization of speech" in the third left convolution, that any case bearing upon this very mooted point can not fail to be of interest. In the following case this left convolution, with the adjacent parts of the anterior lobe, was extensively invaded by cancerous infiltration, without in any way interfering with speech up to the moment of death:

No. 7.—*A cancerous tumor of the orbit, involving the anterior lobe of the left cerebral hemisphere, without symptoms of cerebral disease.*

K——, a farmer, sixty-three years of age, presented himself for operation under the following circumstances. For some months he had been suffering with severe pains,

the pressure effects of a tumor growing within the orbit, which had caused so great a protrusion of the eyeball that the lids could not be closed. The eye itself was apparently sound, with clear cornea, and bright pupil, and yet without perception of light. The orbital tumor had expanded the upper lid, and in it large veins were seen. A flattened tumor was also found filling the temporal fossa. He suffered intensely with pain, and desired relief by an operation. He had been up to within a few months a perfectly healthy farmer, of strong constitution. The diagnosis of malignant tumor was clearly made out from the pain with rapidity of growth, and as the outer rim of the orbital ring could be clearly traced, the tumor in the temporal fossa was recognized as an outgrowth from the orbital mass, which had, through pressure or infiltration, destroyed the external wall of the orbit. As the patient's mind was bright, without cerebral complications, it was deemed possible to remove the mass; and if found necessary, arrangements were made to apply the actual cautery and chloride of zinc paste to check hemorrhage, or to insure isolation of the disease by extensive sloughing, as had been so successfully done by Mr. Lawson and Mr. De Morgan.

Under chloroform, an incision was made from the outer canthus to the ear, with a perpendicular cut two inches long from the centre of this first incision. The two flaps being freely dissected upwards, and the temporal fascia freely divided, the base of the tumor was reached. The bones of the side of the head were now found much more widely destroyed than had been suspected. The opening through the skull was not restricted to the outer wall of the orbit, but was much enlarged by extensive absorption of portions of the frontal, ethmoid, temporal, and parietal bones. In other words, the bones forming the inner boundery of the temporal fossa, above the level of the zygoma, had been to a great extent destroyed, exposing the outer side of the

anterior cerebral lobe, with which the cancerous growth appeared to be continuous. Finding it impossible to remove the cancerous mass, further operative procedure was desisted from, the wounds closed by points of suture, and dressed with a carbolic acid lotion. Relief from the previous severe pain followed the operation, and for a week the patient made good progress towards the healing of the wound, sleeping well, eating heartily, and suffering but little. At this time tetanic symptoms set in, with trismus and opisthotonos, which carried him off in three days; the mind, as usual in such cases, remaining unclouded to the very last. An autopsy exposed a tumor, which, after filling the orbit, had extended backwards into the skull through the orbital foramen, now very much enlarged by the destruction and absorption of the contiguous bony walls. The whole base of the anterior lobe, including the meningis, were incorporated in the growth, which extended to the anterior border of the middle cerebral fossa, involving the brain substance from below upwards and from without inwards, for a considerable depth. The character of this inferior and external surface of the anterior cerebral lobe was so modified that no appearance of a convolution could be detected.

REMOVAL OF A FIBROID TUMOR OF THE UTERUS.

BY CHAS. W. CHANCELLOR, M. D.

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SARAH D., a colored woman, aged forty, of spare habit; bore one child twenty years ago. She states that her confinement was natural, and that she has menstruated regularly since. Two years subsequent to the birth of the child, however, she suffered severe pain for several months in the

left iliac region, which was followed by a "growth in the lower part of the belly." This increased rapidly for twelve months and then grew, steadily, to an enormous size. She enjoyed good health generally, until the last six or eight months, suffering but little inconvenience, except from the discomfort arising from the large size of the tumor.

On the 1st of August, 1869, she was first seen by me, and was then suffering with diarrhœa and debility. Catamenia regular; abdomen of a tremendous size, distended by a distinct tumor, not painful to touch; apparently movable. The diarrhœa yielded readily to tonics and astringents, but the woman stated that the tumor had "begun again to grow;" that it had increased rapidly within the past six months; and she desired, at any hazard, surgical interference. A careful examination revealed a large round tumor occupying the umbilical region, and flanked on either side by smaller ovoidal tumors, apparently separate and distinct from the central mass and from each other. Fluctuation was thought to exist in the central tumor. The os uteri was tilted back towards the promontory of the sacrum; only its anterior lip could be touched by digital examination; the anterior wall of the vagina was hard and unyielding, and thrust down, as it were, into the vaginal canal, so as to render the use of the speculum and the uterine sound impracticable.

The tumor was believed to be ovarian, and the patient was admitted to the Washington University hospital November 5, and placed on generous diet, preparatory to an operation, which was adjudged to be the only hope of relief, and which she earnestly requested.

Ten days after admission to the hospital menstruation recurred, and the woman complained of being more unwell than usual at such periods; countenance "ashy;" (a sign characteristic of anæmia in the negro.) Ordered quinine and muriated tincture of iron to be taken three times daily.

23.—Menstrual flow stopped; appetite good; spirits buoyant. The tumor was again carefully examined and pronounced to be ovarian; fluctuation could be distinctly made out over the entire extent of the tumor; abdominal circumference thirty-three inches; measurement from the anterior superior spine of the ilium to the umbilicus, twelve inches on right side, fourteen inches on left side; from the symphisis of the pubis to umbilicus, thirteen inches; and from the ensiform cartilage to umbilicus, twelve inches.

Operation.—November 24th, chloroform was administered, and an incision, eight inches in extent, was made in the linea albra, beginning immediately below the umbilicus, and extending towards the pubis. The abdominal walls were of unusual tenuity, and the peritonæum was reached with one stroke of the knife; this membrane being carefully divided (upon a grooved director), a large amount of serous fluid poured out, and a mass of omental veins, resembling convolutions of the small intestines, protruded through the opening; these veins being ligated and turned aside, a white glistening tumor was brought into view. This was adherent to the abdominal wall, but was readily detached. An unsuccessful attempt was made to force a trocar into this mass, but it was found to be as impenetrable as sole leather. The incision now required to be enlarged, in order to extricate this solid mass from its bed, and was accordingly extended towards the symphisis and carried upwards above the umbilicus. Through this opening a dense fibrous tumor, the size of an adult head, was drawn out, and found to be attached by a strong pedicle to a still larger tumor lying beneath it. The pedicle was secured with a silk cord ligature, and the tumor severed from its companion. Another small tumor, situated in the right iliac region, and attached also by a pedicle to the more posterior and larger tumor, was removed by a similar procedure. A third solid mass, much larger than either of the two already removed,

still existed, completely filling the pelvic cavity and a large area of the abdominal cavity, extending high up and pressing the small intestines firmly against the stomach and liver. This mass, obviously the parent fibroid, was firmly adherent to the bladder, small and large intestines, the spleen, pancreas, and abdominal walls. A rupture of the slightest of these adhesions produced copious hemorrhage, which could only be arrested by the application of the actual cautery. It was now clear that any further attempt to remove the mass would be not only futile, but absolutely reckless, especially as the woman had been under the knife upwards of an hour, and began to exhibit evidences of exhaustion. The peritoneal cavity, into which much fluid had escaped, was now carefully sponged, and the wound brought together with silver wire sutures.

The operation was concluded at 1.30 o'clock P. M., and the patient comfortably cared for; 3 P. M., consciousness entirely restored; pulse feeble; slight pain over the whole abdomen, but no vomiting; 7 o'clock P. M., reaction complete; patient restless; emptied bladder with catheter, and ordered McMunn's elix. ℥j.

November 25.—Had a good night; complains of pain in the chest, confined principally to right side; respiration somewhat oppressed; urine drawn; beef tea and milk punch given freely. 10 o'clock P. M.—Pulse 110; skin dry; pain in chest more severe, with all the physical and rational signs of pneumonia well developed; respiration painful and difficult. Patient grew rapidly worse through the night and died at 3 o'clock A. M. on the 26th.

Autopsy.—Edges of wound healthy and uniting; peritoneum slightly injected, but free from lymph: no suppuration nor effusion into the cavity; bloody exudation from the mouth and nostrils. The remaining tumor was found, on examination, to be a nodulated fibroid, weighing about twenty pounds. It had grown, apparently, from the whole

outer circumference of the uterus, completely enveloping that organ and its appendages. The uterine cavity was discovered in the centre of the mass, elongated and narrowed so as to present the appearance of a sacculated canal, bridged in its transverse diameter by several thick fibrous bands. The opening of the left fallopian tube was found high up in the cavity; the right was occluded. Both ovaries were imbedded in the fibrous mass, and were greatly enlarged; that of the left side alone presented a trace of healthy tissue; the right had degenerated into a pale undefinable mass the size of a small orange, and holding in its meshes a number of chalky concretions.

Remarks.—The error in diagnosis was, in a great measure, due to the fluid which surrounded the mass, disguising its nodulated form, and communicating to the touch the sensation of a fluctuating tumor. Death was occasioned not by shock, nor hemorrhage, nor peretoneal inflammation, nor septicaemia, but by a rapidly developed and extensive pneumonia, which could scarcely have been consequent upon a depressed activity of the nervous centres, but was more probably owing to the immediate effects of the long-continued chloroform inhalation, producing irritation and subsequent inflammation of the delicate structure of the air vessels.

The most remarkable circumstance in connection with the case is the fact that the woman menstruated regularly and healthily throughout the progress of the disease, notwithstanding the abnormal condition of both ovaries.

SELECTED ARTICLES.

RECENT RESEARCHES ON TUBERCULOSIS.

BY J. BURDON SANDERSON, M. D., F R. S.
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I PROPOSE in the following pages to give an account of some of the more important results of the experiments which have been made during the last few years as to the artificial production of tubercle, to illustrate their bearing on questions of pathology, and to endeavor to bring them into relation with the teachings of clinical experience. I have first to state as clearly as I can what are the leading facts as to artificial tuberculosis, leaving out what is unimportant, taking in all that has a bearing on my subject, whether it results from my own observations or those of others.

The literature of artificial tuberculosis is very extensive; for without reckoning limited inquiries, six complete series of researches have appeared in Germany, two in England, and two in France.

Artificial tuberculosis is most easily produced in the guinea-pig, next in the rabbit; with most difficulty in the dog. The results obtained with horses and cattle are as yet doubtful.† For three reasons the guinea-pig is preferable; (1) because it is absolutely free from liability to natural tubercle; (2) because it is little liable to acute inflammation; and (3) because it can be inoculated with absolute certainty. Artificial tuberculosis may be produced either by the inoculation of infective material or traumatically. My experiments show, that of all inoculated materials none is more certain or more active than material taken (as vaccinators say) hot from the diseased glands of a living animal already infected. The dose

* My own researches as to artificial turberculosis are contained in the Apendix to the Report of the Medical Officer of the Privy Council for the present year, and in that published in 1868. The reader will also find in those papers a detailed account of other researches on the same subject.

† The recent researches of M. Chauveau, not yet published in detail, show that artifiicial turberculosis can be produced with the greatest facility and certainty in bovine animals.

required is almost infinitesimal. If a diseased gland is squeezed into a little distilled water in a capsule, and the resulting slightly turbid liquid injected into the pleura or peritoneum, you are certain of results. I have inoculated with success in a great number of situations; most frequently in the subcutaneous cellular tissue, but also underneath the conjunctiva, in the brain, and in the serous membranes. For the purpose of studying the process, the serous membranes are so infinitely preferable, that I will confine myself to the results so obtained.

In April 1868, Dr. Wilson Fox and I published for the first time experiments showing that tuberculosis may be produced in animals traumatically. I happened to have precedence as regards the date of publication, but the experiments were made independently and at about the same time. I produced tuberculosis in the guinea-pig by the insertion of setons, Dr. Fox by the insertion of various non-tuberculous products, and also by setons. This result has since been abundantly confirmed by ourselves and by others, especially by Professor Cohnheim, who produced the required injury not by setons, but by the introduction of a variety of foreign bodies, in themselves harmless, into the peritoneum. In each case a cold abscess was produced around the foreign body as the primary effect, and tuberculosis supervened.

What is the nature of the result produced, and what reason have we for identifying it with human tuberculosis? I shall consider the question at the same time with relation to the traumatic and infective form. The result of either process is to produce a definite disease—a disease which affects almost all the internal organs except the brain, and consists in the formation in them of nodules of new growth. This new growth has that peculiar structure which is common to all those diseased products which Virchow calls lymphomas, including scrofula, leucæmia, tubercle, several diseases of the lower animals, particularly the tuberculous disease of horned cattle, and farcy. Virchow calls all these lymphomas, because they all present a structure which is to be found in certain organs belonging to the lymphatic system. Virchow distinguishes lymphomas into two great classes, hyperplastic and heteroplastic. The hyperplastic lymphoma *par excellence* is scrofula, for this consists in overgrowth (resulting in degeneration) of the lymphatic glands. The hetoroplastic lymphoma *par excellence* is tubercle, for

it consists in the growth of nodules of material which have the same structure in parts of the body where no such structure exists. Leucæmia occupies an intermediate position, because in it we have hyperplasia of the spleen and lymphatic glands, heteroplasia of the liver, kidneys, and mucous membranes. I propose to use the word adenoid to characterize the tissue, for the following reasons:—There are in various parts of the body organs which, like the morbid growths in question, possess a structure exactly resembling, and, in fact, identical with, that of the follicles of the lymphatic glands. These organs are the Peyer's follicles, of the *Trachomdrusen* of the conjunctiva, and the Malpighian corpuscles of the spleen. In addition to these, there are other parts of the body in which the same tissue is met with. Thus, in the neighborhood of the bronchial tubes in the lungs of the guinea-pig there are collections of adenoid tissue which lie between the bronchioles and their accompanying bloodvessels. In the pleura, immediately under the epithelium, there are gland-like, or, as I call them, adenoid bodies, consisting of collections of the tissue in question, surrounding tufts of capillary vessels, and covered with epithelium. In the peritoneum (omentum) there are similar bodies; in addition to which the vessels are surrounded by sheaths or cylinders of the same structure. Underneath the parietal peritoneum there are similar sheaths much less massive, but not less distinct in structure. In the choroid of the eye similar collections of adenoid tissue exist. Finally, during the last few months we have become familiar with the fact, that the medulla of bone consists largely of adenoid tissue, the relation of which to the bloodvessels is very remarkable. The arterioles terminate by losing themselves in the adenoid pulp, the veins commencing by wide sinuses which, like those of the spleen, are mere excavations the pulp without distinct walls.

The reason why I have drawn attention to all these anatomical facts is this:—We have seen that all these structures agree in being formed of adenoid tissue; that tubercle (in the true sense,) the new growth in leucæmia, the new growths in the tuberculous disease of cattle, have this in common—that they also consist of adenoid tissue; and that Virchow distinguishes tubercle from the rest mainly in that it is heteroplastic. I have now to say, that the tubercle produced artificially is in a certain sense hyperplastic—that is, it is an overgrowth, not a new growth. Thus, the parts most apt to

be affected by tubercle are those in which the structure in question exists naturally. The tubercle nodules which are formed in the peritoneum and pleura are overgrowths of nodules which existed before; the masses of new growth in the lung are overgrowths of masses infinitely smaller which existed before; the nodules in the choroid are agglomerations of pre-existing elements, and so on. In order to see this process, you should introduce into the pleura an infinitesimal portion of water impregnated with diseased gland, as already described. In a fortnight or three weeks you have your results. Suppose you take two guinea-pigs, and inject into the pleura of one, leaving the other untouched: In the former the pleura is studed with miliary tubercles, small, but visible to the naked eye; in the latter may be studied the adenoid bodies I have described. They have the same structure as the tubercles, which are simply adenoid bodies enlarged.

This process of overgrowth of pre-existing adenoid tissue is not, however, all that we observe in artificial tuberculosis. I have already stated that nodules are found not only in the serous membranes, but in the solid organs. In the latter, the constitution of the nodules is somewhat more complicated. I will take two organs to illustrate this—the liver and the lungs. In the liver there are two very distinct forms, the leucæmic and the miliary serous. In the first the new growth assumes precisely the character of leucæmic enlargement. The organ is enormously enlarged in consequence of the growth of adenoid tissue around the bile-ducts. At the same time the epithelium of the bile-ducts grows with great activity, so that you have a combination of two things—overgrowth of adenoid tissue round the ducts, of epithelium within the ducts. In the serous form, miliary nodules of adenoid tissue grow underneath the serous membrane.*

In the lung there are also two forms. In tuberculized animals the lung becomes disseminated with minute nodules of lobular catarrhal pneumonia. Each nodule is extremely translucent. On making sections it is found that it consists of two materials entirely different from each other anatomically. On the one hand, the alveoli are choked with the ordinary roundish cells which are

*These nodules have been mistaken by Villemin and others for sections of miliary tubercles.

always found there.* The alveolar walls are thickened by the growth in them of adenoid tissue. As the disease progresses these masses of lobular pneumonia coalesce. Each mass caseates at the centre, *i.e.*, becomes opaque and soft. The disintegration goes on till a vomica is formed. It is not necessary to go further. Let me now consider what is the meaning of the process I have been describing.

What is the relation between the tuberculosis produced by inoculation and that produced traumatically? In both we have to do with infection—that is, the disease progresses, not by continuous growth, but by the distribution or dispersion of infective material from one point. This point I call the focus of infection. I assume that the communication of the disease from a part primarily affected to the rest of the body takes place in the manner indicated, *i. e.*, that it is due to the conveyance of an infective material, and therefore that we may have to do with primary and secondary lesions. Now when you produce an injury of the external surface of such a kind as to bring about those internal changes which constitute tuberculosis, you do so by first producing local primary lesions which are of the same nature as those which result from inoculation. You produce sometimes an open sore surrounded by a base of induration; sometimes an abscess with indurated walls; sometimes no perceptible abscess, but a nodule of induration. It is therefore the induration which constitutes the primary lesion—the induration, which in both cases is the source from which the whole body is infected.

What is the nature of the infective material? On this subject various opinions are entertained by observers. Dr. Waldenburg holds that the infective material consists in fine particles of the inserted substance, and that these particles being introduced into the circulation form the nuclei of miliary granulations or growths. This may be called the capillary embolism theory. Cohnheim infers from his recent experiments that the infective material is always caseous pus. He founds this inference on the observation that in his experiments the primary lesion was always a caseous abscess.

* These cell-like bodies which occupy the alveolar cavities are often called epithelial. Their relation to the epithelial lining of the alveolar walls is not known.

As we have no means of seizing on the infective material, and submitting it to microscopical or chemical examination, the only way in which we can arrive at a conclusion as to its nature is that of studying the course which it follows in its distribation through the body. Let us take for the purpose a case in which tuberculization is produced by injecting a trifling quantity of diluted lymph-gland into the pleura. The course followed by the infective agent in this case may be traced with some certainty. The morbid material is introduced into the serous cavity and spreads itself over its surface. It fixes itself, (however so far as can be judged by the effects), to those parts of the serous surface where there are already masses or collections of adenoid tissue. The nodules of induration are therefore the primary lesions, the base from which the infective agent must be distributed to the rest of the body. How does this distribution take place? Obviously it must be either by the veins or the lymphatics. I am of opinion that both are concerned, and for the following reasons:—

It has now been satisfactorily ascertained that the serous cavities are in fact lymphatic raservoirs. Both the pleura and peritoneum communicate freely with lymphatic vessels. This fact is proved, not mercly anatomically, but also physiologically. Colored liquids injected into serous cavities during life enter the lymphatics. It is therefore scarcely possible for the lymphatic system not to be i nfected if the serous cavities are infected. In addition to this we have the conclusive fact, that the bronchial lymphatic glands are enlarged, and eventually undergo all those changes which characterize scrofula. I do not think, as some other observers do, that the lymphatic capillaries are specially the seat of nodules. I have already given another account of their anatomical relations; and I have made definite observations as to the behaviour of the lymphatic capillaries in those parts of the peritoneum where they can be best observed—particularly on the surface of the diaphragm. I have ascertained that the natural adenoid tissue which is there to be found underneath the serous membrane, although often existing in quantity, close to minute lymphatics, does not belong to them, but to the veins; and further, that the beautifully-defined miliary granulations which often cover the surface of the diaphragm are not in the course of lymphatics, as Klebs and Aufrecht maintain, but in the course of veins. In short I hold that those observers

have both mistaken veins for lymphatics,—a mistake which is exceedingly easy. I am therefore of opinion that the tuberculous virus is taken up by the lymphatics at every focus of infection, and carried thence to the lymphatic glands; but that it is not the channel whereby it enters the circulation.

In every case the veins offer a much readier channel for the purpose than the lymphatics. Thus, if we admit that the subserous nodules stand in the same relation to the venous radicles as the adenoid masses from which they spring, it appears certain that the facilities for the penetration of molecular morbid products or even of corpuscles must be very great; and it is further clear that, if any such material does enter the venous system, nothing can hinder its general distribution, whereas what it absorbed by the lymphatics is liable to be arrested in its passage through the lymphatics glands.

The third stage of the infective process obviously consists in the general distribution of the morbid material throughout the system by the arteries. This can be best understood by again referring to what occurs in the liver. If the infection is made into the peritoneum the surface of the liver becomes infected directly. It becomes studded with miliary subserous granulations. If the injection is into the pleura it does not at first become diseased at all but eventually adenoid deposits are found round the ducts. The difference of form of lesion corresponds to the difference of mode of infection. Infection by the arteries gives rise to disseminated or infiltrated new growth in the depth of the organ. Infection by the peritoneum causes isolated miliary granulations on the surface.

In what way do these facts as to the course followed by the infective agent aid us in arriving at a conclusion as to its nature?

I hold with Waldenburg the material to be solid matter in a state of extremely fine division, but do not agree with him in separating tuberculosis from the infective process which constitute the specific infective diseases—*e.g.*, smallpox, scarlet fever, glanders. By proving that the infective material is necessarily solid, not in solution we establish and strengthen the analogy with other infective diseases. It appears to me certain, from the experiments of Chauveau, that the contageum of smallpox is an insoluble substance, and exists in the state of minute particles; and that the contagia of vaccine, of glanders, and of ovine smallpox are of a similar nature. All our researches therefore tend to bring tuberculosis into the category of

infective diseases; but on the other hand, they lead us to believe that the infective matter is infinitely more common, and that the conditions for its production are probably much more of frequent occurence than those which generate the other morbid poisons.

I have now said as much as I have time to say about the results of artificial tuberculosis. I have endeavoured to show that the disease produced is an effective disease, that its spread through the body is due to the presence in the circulation of an infective material, which may, I think, be nearly allied to the infective materials of other diseases of the same class, and that its anatomical resemblance to the so-called tuberculous diseases in man and other animals is so great that it is not possible to point out a difference.

I now proceed, by way of application, to refer to the most important of the doctrines which have been advanced of late years as to the nature of human tubercle, and to see how far the facts we have been considering bear upon them.

I need not observe that the whole of our modern notions about pulmonary tuberculosis date from Laennec. Not because he was the first that ever observed well on the subject, but because the discovery of auscultation so entirely altered the clinical aspect of the disease, that pathologists—unfortunately it must be admitted—forgot all that had preceded, or seized upon the new doctrine of tubercle as if it were definitive. There never was a more complete case of turning over a new leaf. It was not merely receiving the new, but clean forgetting the old as if it had never existed.

The new doctrine was this—That tubercle is a specific new growth, something not existing before, which grows in the affected parts; that the new growth is partly characterized by its physical properties, but mainly by the orderly succession of changes which it undergoes; that it is first gray and translucent, afterwards becomes opaque, and finally cheesy. It was Laennec who originated the distinction we now constantly hear of between gray tubercle, crude tubercle, and cheesy tubercule. These three conditions he thought so unvarying in their relation to each other that, if in any given instance the third were found, he considered that the first and second must have preceded it.

In its application to phthisis this theory is very significant. It implies that the disease consists in consolidation, followed by disintegration of the consolidated parts. In the discussion on the

nature of the disease all turns on the conclusion formed as to the nature of the first consolidation. Laennec advanced for the first time the theory that the consolidation was due to the deposit in the organ of a new material, a new kind of morbid growth. This he called tuberculous material. He said it had nothing to do with inflammation either chronic or acute, nothing to do with any other sort of consolidation except itself. How did it happen that this doctrine was so generally accepted? For reasons apparently which had no immediate relation with the question at issue. It was thought that Laennec knew more about it than any one else. He had discovered auscultation and percussion; he had taught men to make out by physical signs that phthisis existed long before the signs of marasmus were to be observed. In short, the specificity of tubercle was believed in because Laennec taught it.

It is well known that Laennec's greatest opponent was Broussais. For at that time Paris was the arena of pathological disputation, just as Edinburgh was at an earlier period. Just as Lænnec excluded, so Broussais included inflammation in all his pathological ideas; but he distinguished two kinds of inflammation. He distinguished between acute inflammation, on the one hand, and those chronic indurations which result from continuous irritation on the other; and he had a theory about them, viz., that whereas acute inflammation is a disease of the blood capillaries, irritative induration is a disease of the lymphatic capillaries. In thus theorizing, Broussais went far beyond his facts, and was speculating about things beyond his knowledge, for at that time no one had seen a lymphatic capillary. To a certain extent Broussais's idea of lymphatic inflammation was a prediction or anticipation of what we now know; but after all it was a mere imagination. He saw that chronic induration was different in nature from inflammation, and therefore supposed it had a different seat. Nothing could be more natural or easy than to fix it in the lymphatic system.

Soon it appeared that Laennec's theory of specificity required some kind of support from facts. If tuberculous material were a species of morbid growth, it must have characters by which it could be recognized. These characters were sought in two directions, chemistry and anatomy. Of the efforts made by chemists some twenty years ago to characterize tubercle little need be said, for they came to nothing. The apparent results arrived at by anatomical

investigation for the same purpose were much more considerable. When pathologists became possessed of the microscope one of the first uses to which they put it was to try and make out the characteristics of diseased products—so-called exudations. In Vogel's Pathological Anatomy, Gluge's Microscopical Researches in Pathology, and above all, in Lebert's Treatise on Tubercle and Scrofula, Laennic's doctrine was, as it were, done into microscopical language. According to Lebert, tubercle consists of minute bodies of a particular size and form, from $\frac{1}{350}$ to $\frac{1}{250}$ inch in diameter. He made drawings of these corpuscles, and taught that by means of them the microscopist could distinguish tubercle from all other kinds of morbid product.

There can be no doubt that this great mistake of Lebert's exercised a considerable influence on pathological ideas about tubercle, and this for several reasons; most of all, because it brought the specificity doctrine of Laennec into harmony with what was then the new and prevailing pathology. Men had already made up their minds that tubercle was a specific something. Lebert gave that something an anatomical form. And it happened that the same process was going on in other departments of pathology. At the same time that the microscopists described the tubercle corpuscle they described the cancer cell and the typhoid cell—both of which were thought to be as characteristic forms of cancer and typhoid fever respectively as certain crystalline forms are characteristic of bodies of definite chemical composition.

It would probably be wrong to say that these early efforts of microscopical anatomy to elucidate pathogeny were mischievous, but they were certainly retrograde, for they were, after all, mere efforts to inspire with a new and fictitious life old and obsolete, and certainly mistaken, imaginations, by attaching them to actual anatomical forms, for Lebert and the rest saw all that they described, and many of us had them shown to us when we were students. The success with which this was done undoubtedly gave to the doctrine of specificity a much firmer hold on the younger men of the present generation than it would otherwise have had, and even now makes it much more difficult to combat it than if we had passed at once from the antagonistic teaching of Broussais and Laennic to that of Virchow, and had been able to jump over the confusion which the microscope at first introduced into pathological ideas.

Anatomically the cardinal fact is this: All cases of phthisis pulmonalis have this in common, that they commence with lobular induration, and end in disintegration and cavern-formation. In no generally understood sense can a case of aeute miliary tuberculosis be said to be a case of phthisis. This broad definition of phthisis brings us back once more to Laennec. It was he indeed who first recognized the fixed relation between induration and disintegration as antecedent and consequent; but he unfortunately extended the notion from the tissue to his "tuberculous material." The conclusion to which we have now arrived by anatomical investigation is this: There is no difference structurally between the induration of phthisis and the induration of chronic pneumonia. There are no anatomical elements in the hard parts of a phthisical lung which are not to be found in the hard parts of chronically irritated tissue in any other organ. Finally, there are no elements in the induration of phthisis which are not to be found in chronic bronchitis. It is even possible that there are no anatomical elements in the induration of phthisis which are not to be found in the healthy lung. We cannot say this positively as regards man, but it is certainly so as regards the guinea-pig.

If we examine the unsoftened part of an ordinary phthisical lung, what do we find? Precisely the same structural changes which I have described in the guinea-pig—*i.e.*, changes of two distinct kinds; those of one kind having their seat in the alveolar septa, those of the other in the alveolar cavities. The change in the alveolar septa consists in the development of the tissue which I call adenoid-lymphoid corpuscles embedded in stroma. The change in the cavities consists in accumulation of cellular elements. A diagram of the transparent nodules in the guinea-pig's lung represents as truly the early stage of tuberculous consolidation in man. In the structure itself there is nothing either specific or malignant.

In studying the development of consumption in man, it becomes more and more apparent that three distinct agencies are at work. Of these agencies one is so ill defined that we can only designate it a tendency. To some minds, I am aware, to talk of a constitutional tendency seems meaningless. I am not going to assert the possibility of disease existing absolutely independently of material change, but I do assert strenuously that disease may exist without its being possible to detect any anatomical or chemical basis for it.

As regards pulmonary consumption, the fact of its so frequently attacking in succession several members of a large family shortly after adult life affords to me a proof beyond the possibility of dispute, that something phthisical exists in each such member. In this sense I believe in the existence of latent phthisis, but in no other. No proof has yet been given that, in individuals in whom this tendency exists, the solids or fluids are differently constituted from others. The latent condition can only be described as a tendency or liability, the nature of which is open to speculation.

The second agency is irritation. The organs which are subject to injury are, above all, the mucous cavities which communicate with the external air. A common bronchial catarrh, not differing in any respect except its result from other bronchial catarrhs which terminate favorably, gradually assumes the characters of consumption. In the cases in which tuberculous processes originate from catarrhal inflammations of the genito-urinary organs, the same thing happens. Gonorrhœa leads to prostatitis, prostatitis to scrofulous catarrh of the bladder, which creeps upwards along one or both ureters, and produces induration and caseation of one kidney—that condition which is called renal phthisis. In both of these instances an indurative process, which ultimately becomes disintegrative—*i. e.*, a tuberculosis—begins from a simple catarrh of irritative origin.

The third agency is that which I have designated throughout as *infection*. The word designates the fact, that whenever a chronic induration due to overcrowded corpusculation exists in any organ, it is apt to give rise to similar processes elsewhere.

Although this is the point which artificial tuberculosis serves to illustrate, the notion does not owe its origin to the results of experiment. It was distinctly formalized at least twelve years ago by Buhl almost in the terms in which we are now disposed to accept it. Buhl, however, limited its application to cases in which there are miliary tubercles. He showed, in the first place, that in persons who die of that variety of fever which is characterized by the general dissemination throughout the body of miliary granulations (acute miliary tuberculosis), masses of induration, which have remained in the body long enough to become caseous, are in the great majority of cases to be found; and *secondly*, that in those cases, in which miliary tubercles are sown over a much more limited region, as, *e.g.*,

when they are confined to a single organ, they also spring from old lesions.

Both of these doctrines of Buhl's are, I think, well established, and will be accepted by most pathologists, provided they are not overstated.

They do not, however, include the ordinary case of phthisis, for the instances of phthisis in which typical miliary tubercles are to be found are comparatively very few in number. The position I wish to advance is that *infection* has to do with the development of ordinary consumption—in short, that Buhl's doctrine applies in a certain sense to the so-called infiltrated forms of induration as well as to the miliary.

The results of experiment, as I have said, help us to understand this. If inoculation had produced only miliary lesions, we might have been disposed to *limit* infection to such lesions. The facts are otherwise. By inoculation you get miliary granulations in the serous membranes and in the choroid, but interstitial or diffused lesions in the liver, lungs, and other massive organs—so that here interstitial induration is part of an unquestionably infective process.

By regarding the development of so-called infiltrated gray tubercle as infective, one gets rid of some difficulties. We are no longer compelled to accept the teaching of some of the French followers of Virchow, who restrict the term tuberculosis to what is called "granulie," or to draw too marked a line of distinction between cases of phthisis in which miliary granulations are present and those in which none can be found—or, with Niemeyer, to refuse to apply the term tuberculosis to any excepting certain rare forms of consumption.

As to the word tuberculosis, obviously it would be a great advantage pathologically to get rid of it, as having no anatomical or chemical basis. At the same time, it must be admitted that it has a practical value, as implying a particular kind of malignancy. This malignancy stands in close relation to the infection of which I have been speaking, and in particular, to that crowding together of new growth, whether catarrhal or adenoid, which is the essential character of an infective focus.

In other words, if *tuberculous*, as applied to any organic disease, means anything, it means destructive induration—*i. e.*, that the organ is first hardened, and then becomes softened and indurated.

This, for example, is the only respect in which tuberculous disease of the testicle, of the kidney, of the bone, and of the lungs all agree.

Here I must leave off abruptly. In conclusion, let me observe that, in my judgment, the question of specificity is not one of merely theoretical interest. The doctrine has, I believe, exercised an unfavorable influence both on the treatment of phthisis, and on the management of phthisical patients. It has led men to forget that consumption is influenced by the ordinary causes of inflammation, not only in its origin, but in each step of its progress; and that one most important aim in treatment must be to counteract this influence—not, of course, by returning to the antiphlogistic remedies of the past, nor indeed by any therapeutical interference whatsoever, but by bestowing on the treatment of acute catarrhal affections, whether of the pulmonary, intestinal, or genito-urinary mucous membranes, a great deal more care than has hitherto been considered necessary; and, on the other hand, by affording to the poor, when actually suffering from acute disease of the lungs, the means of placing themselves under protection without delay from the injurious action of cold and occupation. I hold that the principle on which hospital relief should be administered, for the benefit of those who are either liable to or actually affected with phthisis, is that of *prevention*, and that if hospitals for the diseases of the chest are to be of any real value, the regulations for the admission of patients ought to be so framed that all persons affected with acute disease, whether secondary or primary, may claim immediate admission into hospital, on the mere ground of urgent need, independently of the accident of a Governor's recommendation.—*Edinburg Medical Journal.*

ON THE IDENTITY OF THE WHITE CORPUSCLES OF THE BLOOD WITH THE SALIVARY, PUS AND MUCOUS CORPUSCLES.

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THE nature of the nucleated corpuscles so abundant in the saliva has long been a subject of some uncertainty, although they have probably, as favorite test objects for the higher powers, been

more frequently examined by microscopists than almost any other constituent of the glandular secretions. Observers seem to have been generally contented to accept them simply as useful measures for the capacity of the higher objectives, and passed on without any attempts to solve the mystery of their origin; Kolliker, indeed, advanced the theory that they were essentially a form of exudation corpuscles, but hitherto his hypothesis does not appear to have been generally accepted by microscopists as a fixed fact.

The following experiments, undertaken to elucidate their constitution, were performed with the large Powell and Lealand's instrument, so long a denizen of the "Microscope Room," in the Pennsylvania Hospital, and no doubt endeared by constant association to many generations of "Residents," as well as to myself. When it was discarded by the institution, I became the purchaser, and after undergoing some repairs, and having adapted it to a $\frac{1}{25}$th inch objective (made by Mr. William Wale, of Fort Lee, N. J.,) it has accomplished the work below described.

The salivary corpuscles examined under a power of eleven hundred diameters present the appearance of perfect spheres, varying from the $\frac{1}{1400}$th to the $\frac{1}{2600}$th of an inch in diameter, each having a very transparent but beautifully defined cell-wall of exceeding tenuity, which encloses from one to four almost equally transparent nuclei of a circular or oval form, whose diameters range from $\frac{1}{300}$th to $\frac{1}{4000}$th of an inch. These nuclei are situated sometimes centrally, but more commonly near one side of the corpuscle, and the cavity between the margin and the cell-wall is generally filled with from twenty-five to fifty molecules, not more than $\frac{1}{30000}$th of an inch in diameter, whose characteristic is that of rapid and constant motion. Some of these molecules seem to be elongated into an oval or hour-glass form, but the activity of their movements renders it difficult to ascertain this with precision. In my observations these corpuscles have appeared to enlarge and become flattened, from the pressure of the glass cover, as the stratum of liquid beneath became thinner from marginal desiccation, so that usually in the course of an hour or so they burst, and discharge about one-fourth of their contents, when two, three or more of the molecules swim away, continuing their revolving movements until they pass out of view; the other granules outside and those remaining within the cell become within a very few seconds

entirely stationary. If a solution of aniline red, of the strength of one grain to the ounce of distilled water, be allowed to penetrate at the margin of the cover, the nuclei of the salivary corpuscle are readily stained of a bright crimson, and are thus exhibited with beautiful distinctness; the dye appears, however, to exert an immediate influence upon the movement of the molecules, as I have rarely been able to find cells in which they continued to move after the nuclei became at all colored.

In examining some urine, obtained on the 8th of August, 1868, near my late residence, in Western New York, from a patient who complained of severe pain in the kidneys and bladder, I was surprised to find that a deposit, which appeared to the naked eye purulent, was chiefly composed of cells, exactly resembling in form, size, definite cell-wall, contained nuclei, and actively revolving molecules, the salivary corpuscles with which I had become so familiar; and should have imagined that these proceeded from an accidental adulteration with sputum, had I not been fortunate enough to have ocular demonstration to the contrary when procuring the specimen. I examined the corpuscles repeatedly in the course of the two following days, during which the movements of the molecules continued, but could make nothing else of them except drawings which I carefully preserved.

On consulting the text-books to which I had access, I found that neither Beale, Roberts, Bird, nor Naubauer & Vogel, in their works on the urine, mentioned cells such as those above described, although the editors of the "Micrographic Dictionary," in their description of the salivary corpuscles, state that they have seen them by myriads in the renal secretion; nevertheless, numerous specimens examined during the following few months, seldom without special scrutiny for similar bodies, afforded none, until in a deposit occuring from urine brought me by a medical friend about December 1st, the corpuscles I had so long been in search of were at last recognized, and on this occasion I was able to exhibit them to several microscopists, among others to my friend, Dr. H. C. Wood, Jr., Professor of Botany, in the University of Pennsylvania.

On the 5th of December, I procured a sample of urine from a case of cystitis, which had only been passed a few hours, and on placing it under the field of the $\frac{1}{25}$, I found many of the pus-globules exhibiting the amœbaform movements described by Dr. Beale, in his

late elaborate work on the "Microscope in Practical Medicine," no corpuscles containing moving molecules were visible, but observing that some of the pus-cells having a spherical outline were almost opaque, and only about $\frac{1}{3000}$ of an inch in diameter, it occurred to me that they were perhaps only contracted by the exosmose of their fluid contents into the surrounding denser medium, and the idea suggested itself to try the effects of diminishing the specific gravity of the urine, by the addition of water. Under this treatment, I found that the cells which had been exhibiting amœbaform movements, soon assumed a spherical shape, rapidly enlarged until they reached the diamater of about $\frac{1}{1700}$ of an inch, when the contained molecules began to revolve, and ere long took upon themselves the extremely rapid and confused movements which I had twice before seen in cells occurring in urine, and hundreds of times in the salivary corpuscles; the action of aniline solution rendered beautifully distinct, definite nuclei similar to those found in the salivary bodies.

The opportunity of corroborating the interesting and remarkable researches of Dr. Cohnheim, of Berlin, on the identity of the pus, and white blood corpuscles thus obviously presenting itself, I proceeded with the following experiments. Drawing a drop of blood from the tip of my finger upon a "growing slide," I covered it with thin glass, and placed it upon the stage of the microscope. After finding a white blood-corpuscle showing well marked granules, I raised the objective, and arranged a fine filament of thread from the reservior filled with fresh water to the upper edge of the cover, and a fragment of wet paper to the lower, according to the usual method for securing a constant current beneath the thin glass. On depressing the body of the instrument and bringing the corpuscle again into view, I found it still adhering to the surface of the cover, notwithstanding the torrent of red globules hurrying over the field; and as these became paler and less distinct by reason of the diminished density of the serum. The white cell first gradually expanded and displayed its delicate wall with two rounded nuclei, then, after acquiring the magnitude of about $\frac{1}{1700}$ of an inch, it exhibited the rapid and incessant movement of its contained molecules, and finally, when its diameter reaches about $\frac{1}{1400}$th of an inch, it burst suddenly, discharging a portion of its contents, whose outbreak resembled that of a swarm of bees from a hive, and some particles of which, actively revolving as they went, swam off to the confines of

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the field. On repeating the observation and allowing some of the aniline solution to flow in with the water after the first few minutes, the nuclei were strongly stained and rendered beautifully distinct, although the movement of the molecules promptly ceased, in this respect as in all the others showing a precise identity with the reactions afforded by the pus—and the salivary corpuscles as above described. It should be noted that a certain variable proportion of the white cells of the blood thus treated exhibited no moving molecules, and apparently consisted solely of mucleus and cell-wall. It is worthy of remark that this experiment amply demonstrates the inestimable advantages of high objectives (which some even yet pretend to doubt), for the remarkable movement of the contained molecules seems to have escaped the attention of Prof. Virchow, the great author of the "The Cellular Pathology," himself, (vide p. 181, Chance's translation 1863). Although the observation was first made with the aid of a $\frac{1}{25}$th, yet afterwards knowing exactly what to look for, I had little difficulty in demonstrating to various gentlemen the revolving molecules thus brought into view with powers as low as the $\frac{1}{8}$th inch.

A portion of febid pus from an abscess, and a specimen of mucous from the nasal fossa, under a like treatment gave similar results, which did not materially vary in numerous trials.

Tracing now the white blood-corpuscle from its condition of irregular outline, and amœbaform movement, as observed in senum and in heavy urine, when the circumambient fluid approaches the density of 1028, through its rounded form with slightly more distinct nuclei, in the liquor puris, and in urine of lower specific gravity, we find that immersed in a rarer liquid, approximating to the mean density of the saliva (1005,) it has an accurately spherical outline, is more than twice the magnitude, and contains a number of minute actively moveing molecules, thus exactly resembling in all sensible characters the true salivary corpuscle; and it therefore seems reasonably certain that the blood, under the appointed nervous influence, congesting the buccal mucous membrane and associated glands, moves slowly enough through its capillaries to allow some of its white globules to penetrate the walls of the vessels, as they are said to do those of the frogs mesentery in Cohnheim's experiment (Virchow, archiv; Band 40, 8. 38, u. s. w.), which, under the influence of the rarer saliva, expanding them and setting them free to

move their contained molecules, constitute the bodies so long known to histologists as the corpuscles of the salivary fluid.

Dr. Lionel Beale, in his work on the "Microscope in Practical Medicine," remarks in reference to the examination of the saliva: "In the somewhat viscid matter, of which the salivary corpuscle is composed, are multitudes of highly refracting particles in incessant motion. The nature of these particles is extremely doubtful. They look very like the germs of bacheria, and it is possible they may be of this nature." If the hypothesis thus guardedly endorsed by the celebrated English microscopist be correct, it seems not improbable that the white corpuscles, either in the capillaries of lymphatic glands, collect during their amœbaform movements, those germs of bacheria, which my own experiments (American Journal of the Medical Sciences, July, 1868,) indicate always exist in the blood to a greater or less amount. And further, it appears not impossible that, when thus loaded, their elimination through the saliva, under the mercurial influence, and their evacuation by a discharge of pus from a seton or a tartar-emetic ulcer, really constitute that therapeutic value of these remedial measures in certain cases which has so long rested unexplained.—*Quarterly Journal of Microscopical Science.*

MISCELLANEOUS.

CASE OF ILEUS RELIEVED BY INFLATION—By GEORGE WHYTE, M. D.—The following case of obstruction of the bowels may be of interest as showing the value of inflation for the relief of this very fatal disease:

I was sent for on November 18 last to see a married woman of about forty years of age who was suffering from obstruction of the bowels. On the 16th she had taken ʒ j magnes. sulph., but without relief. She afterwards had an enema administered by a midwife, but this came away in a short time almost clean. When I saw the patient she was complaining of severe pain over the abdomen, which was swollen and tympanitic. The pain, she said, began below and to the right of the umbilious some days before she took the salts. She put her finger at once on this spot, as it was more acutely painful than the rest of the abdomen. She had been vomiting a good deal, the matter brought up being stercoral, and she was very much nauseated. The tongue was furred, brown, and dry; pulse quick and small; the urine was freely secreted. I ordered at once a large enema to be thrown up slowly. This found a ready passage, but in a very short time came away clean. During the day she got other two, one of which contained croton oil, but neither had any effect in relieving the obstruction. On the contrary, she gradually got worse, the pain greatly increasing, and the vomiting becoming incessant and stercoral. One grain of solid opium was ordered every hour till the pain was relieved, and large warm poultices to be constantly applied to the abdomen.

Nov. 19. Feels easier, but is still vomiting stercoral matter. Very weak and anxious-looking; pulse small and quick. Another large enema was given, but without affording the slightest relief. I afterwards introduced a long tube into the rectum as far as I could, and having connected it with a small hand bellows, very slowly inflated the bowels, every now and then kneading the abdomen with my hands. The operation caused a good deal of pain, but I con-

tinued until the abdomen was quite hard, and the patient began to vomit severely, putting up along with the matters quantities of wind. On removing the tube she expressed herself as being much relieved, and in a very short time she had a free liquid evacuation. The vomiting and pain ceased, and she made a rapid and complete recovery.—*London Medical Times and Gazette.*

DISCOURTEOUS TREATMENT OF THE MEDICAL PROFESSION.—Passed Assistant-Surgeon Chas. L. Green, of the U. S. Navy, has been recently tried and found guilty by a court-martial for "treating with contempt his superior officer while in the execution of his office," and for "disobeying a lawful order of his superior officer." Both these charges were manufactured of the single fact that his commanding officer, Lieutenant-Commander Thomas O. Selfridge, ordered Dr. Green to discharge from his sick list John Simmons, an ordinary seaman, which order Dr. Green refused to obey.

The Secretary of the Navy approved the finding of the court, but disapproved of its sentence, which directed Dr. Green to be suspended from his rank, on furlough (half) pay for two years, and to be publicly reprimanded by the Secretary of the Navy, who has remitted all the punishment except the public reprimand.

In his elaborate paper on the subject, the Secretary admits that "authority cannot, of course, control the mind, nor require a false expression of either personal or professional opinion," and yet sustains Lieutenant-Commander Selfridge in his wanton attempt to do this, namely, to require Surgeon Green to express a professional opinion the reverse of that which he conscientiously entertains.

We understand that the "sick list," or "binnacle list," is the surgeon's official report for the common information of the ship's company. It is a brief expression of the surgeon's professional opinion that all who are named on it are not physically qualified to discharge their usual duties on the day of its date. No one has a legal or moral right to modify such report without the sanction of the surgeon.

Lieutenant-Commander Selfridge had a lawful right to order John Simmons to do his duty and refrain from medical ministrations. But he was restrained from this course by his lifelong habit of respecting the authority of the sick list, and for that reason resorted to the expedient of ordering Dr. Green to reverse and thus falsify

his professional opinion by removing the man's name from the sick list. In this act he treated with contempt his inferior officer. Inferior as well as superior officers are entitled to respect.

The attempt to establish the pretension that a commanding officer has a right to compel a medical officer to change his professional opinion, sustained as it has been by the formalities of a court-martial, and the deliberate opinion of a newly-appointed Secretary of the Navy, is fraught with evil, and is reprehensible in the highest degree. It degrades medical service in the navy, and through it is insulting to the entire profession.

Dr. Charles L. Green has resigned his commission in the navy and thus adopted the only course left to him, in order to uphold the honor and dignity of his profession.

We take occasion to recommend our readers to invite to this subject the attention of their congressional friends, and to endeavor to impress upon them the necessity of appropriate legislation in the premises at an early day.—*Med. News and Library.*

ON THE EFFECT OF CORROSIVE SUBLIMATE IN IMPROVING THE CONSTITUTION. BY Dr. H. ALMES.—Dr. Almes confirms the opinion given by other French physicians as to the beneficial effects of corrosive sublimate in improving the constitution; by which it is meant, that this drug not only cures the specific malady for which it is administered, but that it likewise restores the general health.—Dr. Almes was struck, in the year 1856, with the extraordinary powers of arsenic in improving the condition of the body, and he made experiments with other toxical agents, such as tartarised antimony, perchloride of mercury, bichromate of potash, nux vomica, &c., with a view of determining if they possessed similar properties, and the result was that he found all these poisons, in small doses, acting as restoratives on the nutrition, the appetite, and the strength, while the bulk of the body was increased. He found, moreover, that they seemed to strengthen the vital resistance against the invasion of morbid influences, thus protecting the patient from many diseases. In reference to corrosive sublimate, Dr. Almes states that he has employed it as a tonic in many cases, and especially in some children of two to five years old, who could not be suspected of having syphilis. He has continued its use for half-years and whole years, and he has almost constantly observed in the patients an improvement in their general health, characterized by the return of

appetite, increase in bulk and fat, the coloration of the complexion, the development of muscular vigor, and all the external signs of health. The dose of the corrosive sublimate given with this objec is very small, being from 1 to 2 milligrammes a day (a milligramme is the 1-1000th of a gramme, about 15 grains). It is given dissolved in distilled water.—*L'Union Medicale*, July 31st, 1869.

DIABETES IN A CASE OF TUMOUR OF THE MEDULLA OBLONGATA.—J. B. Dompeling reports the case of a patient who met with a fall on the back of the head when about fifteen years of age. Since that time he suffered from sharp pains in the head and in the back of the neck; the lower limbs became considerably enfeebled and there was diplopia. During the space of some years paresis of the limbs of the right side became established with marked blunting of tactile sensibility; sensitiveness to heat was augmented; all the muscles of the right eye were paralysed; at the same time symptoms of diabetes appeared. The urine contained from five to seven parts per cent. of sugar; this proportion diminished during a season passed at Carlsbad, but soon after the disease advanced and was accompanied by fever and cough. The patient died suddenly six years after the first symptoms were observed. After death a tumour about the size of a small nut was found occupying all the right half of the medulla oblongata. It was continuous with the medulla, not limited. It was formed by a fasciculated sarcoma. On its inferior surface were found two small vesicles filled with fluid, but containing no trace of cysticercus. The longitudinal furrow of the floor of the fourth ventricle was thrust to the left; the roots of the accessory nerve and the lower root of the pneumogastric were very atrophied. —*Archives Generales de Medecine*, May, 1869.

ON THE TREATMENT OF CANCER OF THE BREAST.—*By Dr. Th. Billroth, Prof. of Surgery to the University of Vienna.*

According to Prof. Billroth (Vienna), surgery would be more successful in coping with the disease, if the knife was earlier and more freely resorted to than heretofore. In the beginning, the disease is local, circumscribed, and susceptible of removal. In spreading, it may involve structures inaccessible to the surgical knife; relapse is then inevitable and brings discredit on the whole procedure. Nor is it at all easy to determine the limits of the malady by the hardness of the invaded structures, because the microscope often dis-

closes cancerous infiltration without marked change in the consistency of the parts.

Next, it would be better to amputate the entire mammary gland if the cancer shows the least signs of rapid growth. This is not as easy as may appear on the surface, for the genuine structure of that organ is so mixed up with the prevailing fat as to render it almost irrecognizable. The local relapse may be determined solely by a lobular fragment left behind. Billroth likewise advises to exercise every little nodule that may reappear after the operation.—(*St. Louis Medical and Surgical Journal.*)

PULMONARY HEMORRHAGE.—The following are Niemeyer's conclusions on the subject:

1. Abundant bronchial hemorrhages occur more frequently than is supposed in people who neither then nor ever afterwards are consumptive.

2. In many cases the commencement of consumption is preceded by abundant hemorrage, but there is no genetic connection between the two, which really arise both from a common source. The patient has, in fact, a predisposition to them both.

3. Hemorrages from the bronchial mucous membrane proceeding from consumption are sometimes in true genetic connection with it, inasmuch as the hemorrage may lead to inflammatory processes in the lungs, terminating finally in their breaking down.

4. Bronchial hemorrhages occur much more frequently in the course of a consumption than before the disease. They really refer to the time in which the lung disease was as yet latent.

5. Bronchial hemorrhages occurring in the course of consumption may make that disease fatal by means of their tendency to hasten the destructive inflammatory processes.—*Am. Jour. of the Medical Sciences.*

ABSORPTION BY THE HEALTHY BLADDER.—On this subject, M. Segalas has made the following experiments: He injected seven and a half grains of iodide of potassium, dissolved in about two ounces of distilled water, into the bladder of ten healthy men. In none of these ten experiments was there any evidence in the saliva, during forty-eight hours, of any absorption of the drug. The same dose given per rectum was easily detected in both saliva and urine. —*Gazette Medicale de Paris.*

SULPHITES IN PURULENT INFECTION.—Dr. Giovanni Ferrini relates two cases of purulent infection in which the use of the sulphites appears to have produced very beneficial effects. The sulphites employed were those of magnesia and soda, the former being used internally and the latter externally. Dr. Ferrini considers that the sulphites, in such cases as those which he records, not only strengthen the system and protect it from decomposition, but that they also act as preventives against purulent infection. He insists upon the necessity of giving the salts at the beginning of the disease, as they are then most efficacious. He observes that they are diuretic, and not cathartic, and that all their therapeutical action depends on their *antifermentive* properties. But the sulphites must be given with due care, and should not be administered in insignificant doses, or in combination with other remedies which act in a different or contrary manner. They should also be given with a sufficient quantity of water for their solution; the sulphite of soda is soluble in four parts of water, but the sulphite of magnesia requires at least twenty times its weight of water in order to be absorbed. Another indication is not to give the sulphites with acid drinks, for the acids absorb the base of the salts, and set at liberty sulphuric acid. Lastly, the sulphites should be given in sufficient quantity, and even an ounce a day may be necessary in certain cases.—*Annali Universali di Medicina*, 1869.

VACCINATION.—Animal Vaccination; or Vaccination direct from the Heifer. It is deserving of record that this practice is now being pursued in London by by Dr. Blanc and Dr. Ballard, who both speak favorably of it. Dr. Ballard says the animal virus takes a longer time to through its stages of evolution than the human virus. He says that, like the humanised virus, the animal virus keeps better on points than in tubes.—*Lancet and Med. Times and Gaz.*, 1869.

In a discourse delivered at the Academie de Medecine, M. Guerin discusses the modern views upon vaccination. He makes a triple distinction: 1. Jennerian vaccination. 2. Human. 3. Animal vaccination. He insists that, in any case, the cowpox serves as the basis; but that in one case it is inoculated, in the other it is spontaneous. Jenner never inoculated direct from the animal to man, he simply uses spontaneous cowpox. Cowpox

must not be confounded with animal vaccination. Animal vaccina- is slow in production, therefore the virus is less energetic, or finds a soil badly prepared for its germination. Its course is shorter, therefore the virus is weaker. The period of virulence is ephemeral, therefore the vitality of the virus is less. It is very difficult to preserve; you must go back to the beast; therefore it is less active, less prompt than the Jennerian vaccine, which may be indefinitely preserved. As to the last question, the comparative protection afforded against smallpox, the facts relating to animal vaccination are as yet too few. Time is wanted to prove its efficacy; but no one doubts that the question is settled as to the efficacy of the Jennerian vaccine—*Revue Medicale*, July, 1869.

SUPPURATING OVARIAN CYSTS—By Thomas Bryant.—Two cases are here recorded of ovarian disease in which the cysts suppurated, the pus was discharged, and the patients did well. In one case ovariotomy was not performed, or even contemplated, but free incisions were made for the escape of the matter; in the other case, ovariotomy was attempted (though not by Mr. Bryant), but abandoned after the first incisions. The effect of the operation, however, was to discharge a large quantity of fluid, and the patient unexpectedly recovered. The result of both cases proves that much may be done even for patients who are sinking from the irritation of a suppurating and degenerating ovarion cyst, the best plan being to lay open the cyst, evacuate its contents, and wash out the cavity. Mr. Bryant records two other cases, one of which relates to the treatment of the peduncle in ovariotomy, and the other is an instance of menstruation from the peduncle of an ovarian tumour. With reference to the treatment of the peduncle after ovariotomy, Mr. Bryant thinks that the practice of dropping into the peritoneal cavity the end of the divided peduncle with the ligatures cut off close, is not free from special risks, and that some simpler or better plan for treating the peduncle should be sought for, although he is not yet prepared to decide what that plan may be.—*British and Foreign Medical and Chirurgical Review.*

DESQUAMATION OF THE SKIN.—According to M. Ranvier, the interpretations which have hitherto been given of the mechanism of desquamation are quite insufficient. Thus it has been said that it

is the result of an abnndant neoformation of epithelial cells; but such a neoformation would, as in icthyosis, increase the thickness of the epidermic layer instead of giving rise to desquamation. Rindfleisch believes that the neoformation is so rapid that the cells have not time to become fixed. But it is not in the deeper layers, but in the most superficial that desquamation takes place; it is not at the time of neoformation, it is later. The conditions of *seat* and *time* are not fulfilled by this observer's view. According to M. Ranvier's observations, he has always observed at the period just before desquamation, dilatation of the nucleolus of the cells of the Malpighian layer; the circumference of the vesicle formed by the dilated nucleolus is not parallel with the circumference of the nucleus. It touches it at one point, probably in the situation of the canal discovered by M. Balbiani. This alteration of the nucleolus induces a modification of the cell (*Etat muqueux*); it cannot become horny. Thus desquamation is the result of a certain mode of nutrition having origin in the mucous layer of Malpighi. This "*Etat muqueux*" may exist without desquamation, properly so called; thus in the "*plaque muqueuse*," for example, on perpendicular sections a larger or smaller portion of the cells may be found to be undergoing mucous transformation.—*Societe de Biologie, Gaz. Medicale de Paris.*

Modes of Criminal Poisoning in France.—M. M. Chevalier, in his report on the modes adopted in France for the destruction of human life by poison, from the year 1855 to 1865, gives the following:—Total number of cases, 494; cases by arsenic 135, phosphorus 180, verdigris 15, sulphuric acid 22, sulphate of copper 83, cantharides 10, laudanum 6, hellebore 6, strychnia 5, hydrochloric acid 4, sulphate of iron 3, ammonia 3, morphia 2, eau sedative 2, tartar emetic 2, mercury 2, digitalis 2, powdered glass 2; nux vomica, mercurial ointment, colchium, Fioraventi balsam, syrup of poppies, potash, nicotine, prussic acid, croton oil, antimony, and carbonic acid, of each 1. The most curious facts, in looking over this list, are the great number of cases of poisoning by phosphorus, the enormous proportion of painfully killing poisons selected by the criminal populace for the destruction or self-destruction of life, and the ease with which the larger number of the poisons in use admit of being detected by chemical analysis.

POISONING BY PHOSPHORUS.—Dr. Andante relates a case in which a man, sixty-three years of age, took (for the purpose of committing suicide) no less than 120 phosphorous ends of lucifer matches, chewing them deliberately and swallowing without expectorating. He took these in two doses, and, to make assurance doubly sure, he followed up each dose with a dose of essence of turpentine. He did not vomit, had pains in his stomach, which were bearable, and his mouth was dry. After a time he was intensely thirsty, and exhaled an odor of phosphorus and turpentine combined. Ultimately he recovered, in the course of ten days. The case is worthy of notice, as affording support of the view that turpentine is an antidote to phosphorus.—*Journal de Pharmacologie.*

THE OVARY.—M. S. Tarnier, in the last edition of Cazeaux, following M. Sappey, tells us that—

"The ovary is composed of a central portion and of a superficial, which he calls the ovigenic layer, and which alone contains Graafian vesicles. These M. Sappey calculates are over 300,000 in each ovary, making near 700,000 for the individual. If, therefore, all the ova existing in the surface of the ovaries of a young woman were to be fecundated and undergo all their pheses of development, it would requiere but two women to furnish inhabitants for a capital like Paris, containing 1,600,000 souls . . . . There are as many ovicacs in the fœtus as there will be at puberty."—*British and Foreign Medico-Chirurg. Review.*

VAGINAL RESPIRATION.—Under the term Vaginal respiration, Dr. Kristeller describes the movements of rise and fall of the vagina under the influence of the rise and fall of the diaphragm. When the spoon-speculum is introduced, pressing back the posterior wall of the vagina, the rise and fall of the anterior wall, synchronously with the corresponding movements of the diaphragm, are clearly seen. Under ordinary circumstances, the vulva being narrow and the vaginal walls in contact, no airs enter; but if the walls be kept apart, as by a tumour or pessary, great relaxation laceration of the perinæum, or other agency, air will enter, especially after labor. The influence of air is seen in the foulness of secretions, the decomposition of plugs, &c.—*Monatsschr. f. Geburtsk.*

EDITORIAL.

WHILE there are already in circulation so many medical periodicals of high repute, and especially since first class foreign journals have been placed within such easy reach, it might seem a work of supererogation to attempt a new monthly in Baltimore.

Independently however, of the pride and pleasure we should all have in cultivating our own fields, there is another very good reason why such an enterprise should be sustained. Throughout that district of our country—the South—to which we chiefly look for support, there are many faithful and competent workers, whose labors could add much to facts and theories of our science, but the results of which are in great part lost, from the want of convenient channels of communication. At present most of the productions of our own writers are to be found scattered among the journals of other States. While science should know no geographical lines in one sense, in another it is eminently right and desirable.

Each community should aggregate its own experiences in presenting them to the scientific world for approval or correction. One of the objects of this journal shall be then, to establish near home a medium through which, not only the profession generally will be reached, but more especially those who are laboring in the same fields, under similar climatic influences, and who can consequently best appreciate and utilize the suggestions that may be made.

But while we shall always be glad to consider papers for the original department, from any source, we shall firmly exercise the right of judging whether they are calculated to

increase the sum of our knowledge, or prove of general interest. Observation has taught us to believe that too many of the "Original Communications" of the day are but crude and hastily developed thoughts, adding nothing to the science of medicine, and only encumbering an already encumbered literature.

The principal features of the journal, it is intended, shall be the Eclectic, and the Review Departments.

Scattered over the wide field of periodical literature, the useful and the useless are so closely intermixed, that no little care and time must be expended in winnowing the grain from the chaff. This we propose doing to the best of our judgment, and arranging under the head of Selected Articles only those which appear to be of practical interest, and such as may be necessary to keep our readers informed of what is new in the various branches of our science and art in this country, as well as abroad.

The Reviews will be inaugurated in our next issue.—While the press is teeming with new books, the practitioner is so circumscribed in time and energy, that after the busy day's rounds, he can scarcely hope to make the briefest acquaintance with them personally. To meet this deficiency, Reviews are of inestimable value, when written, as they should be, to condense the leading features, and give only the salient points of books, rather than to exhibit the skill and knowledge of the Reviewer, as is too often the case.

The editorial shall be the smallest part of the journal. As its aim is to supply a medium for the expression of others' views, and to reflect what is going on in the medical world generally, we shall studiously avoid making it the vehicle for our own peculiar notions, and will certainly not permit it to become the organ of any special interest. Whenever it seems proper to discuss subjects relating to the welfare of the profession, we shall try to do so fairly and fearlessly, but always, we trust, in a broad and catholic spirit, ignoring all local and mere party issues.

PROF. N. R. SMITH, who has for nearly forty years filled the Chair of Surgery in the University of Maryland, has resigned the position for the purpose of giving his time more entirely to private practice. Prof. Smith, in the discharge of his collegiate duties, and in a most extensive surgical practice, has won for himself a reputation second to none in the country. Nearly four-fifths of the physicians of this State have profited by his instruction, and hold diplomas signed by him. These, and his numerous other friends and admirers, will be glad to learn, that notwithstanding his advanced age, the Professor continues of robust health, and is still characterized by the activity of his habits. We congratulate ourselves on having secured his support, and hope to give, from time to time, reports of his more interesting cases, and some of the results of his long experience.

THIS No. of the Journal will be sent to some who have not yet subscribed. Those who intend doing so will please notify us *at once*, that we may know how large an edition to prepare for our next issue.

[Extract from the Minutes.]

HALL OF THE FACULTY, *Oct.* 29, 1869.

At a meeting of the Medical and Chirurgical Faculty of Maryland, the deaths of Drs. J. H. O'Donovan and H. W. Webster were announced, and the following preamble and resolutions unanimously adopted:

It is a sacred duty from the living to the dead, for the surviving associates of members of this faculty to pay just respe[illegible]o their excellence of character and professional ab[illegible] The faculty have rarely been called upon to d[illegible]ig[illegible] s duty to two of its members, more wort[illegible] at a [illegible]nial than Dr. J. H. O'Donovan and D[illegible]d, rests [illegible] of parts,

be it resolved by the Medical and [illegible]ecedent to

Faculty of Maryland in convention assembled, that the faculty express their great regret at the loss of these two distinguished members of the profession, who, through a long life, faithfully did their duty as physicians in the most devoted manner, so as to gain the warm affection of their fellow citizens and the respect and confidence of their professional brethren.

Resolved, That a copy of these proceedings be spread on the minutes of the Faculty as a permanent record of their memory, and that it be sent to the families of the deceased and published in the medical journals and the public papers.

Resolved, That the committee on memoirs be requested to prepare or cause to be prepared, memoirs of both these deceased members.

H. M. WILSON
Secretary.

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ORIGINAL COMMUNICATIONS.

A PLEA FOR "COUNTER-IRRITATION."

BY F. T. MILES, M. D.,
Professor of Anatomy in the University of Maryland.

THE present time seems strikingly marked by a freedom from the weakness of regarding things as good simply because they are old, or as claiming our consideration because they have for a long time excited the respect of others. Indeed, unreasoning veneration for the past has been assailed on all sides by blows so vigorous and successful, that there seems to have sprung up a superstitious value for everything that claims to be new, an unscientific facility for accepting, without criticism, "the last word," as truth. Amongst the time-honored ideas in our profession which have been of late assaulted with vigor, by those who speak with a voice potential upon medical matters, is that of "counter-irritation"—the irritation of the skin with a view to influencing favorably the condition of a diseased organ situated at a distance from the spot irritated—which, it is asserted, rests on no knowledge of the connection and relation of parts, but is "a relic of notions belonging to times antecedent to

the birth of scientific physiology." Referring to the application of blisters, croton oil, etc., to the chest and belly for relief of diseases of the organs within those cavities, Dickinson says: "It is easy to show that there is no direct communication in these cases, by nerves, or blood vessels between the skin and the organs which it is desired to influence, and it is not easy, or, perhaps, I may venture to say, it is not possible, to show how the deep inflammation can be advantageously influenced by such proceedings." ("Practitioner," August, '69.) Anstie expresses himself on the same subject still more strongly, and says: "If, indeed, there were any conceivable route to the part intended to be relieved, we might expect that some effect, though by no means necessarily beneficial, might be produced on the deep-lying disease." ("Lancet," Feb. '69.)

Believing, as I firmly do, that altering the vascular and nervous condition of portions of the skin, by various agents, does often exercise a potent influence for good on deep-lying organs when diseased, acknowledging at the same time that we are greatly in the dark as to the exact manner in which this influence is exercised, being furthermore impressed with the vagueness and indiscriminateness with which "counter-irritants" are often employed, I desire to attract attention to some "conceivable routes" by which impressions may travel from the skin to organs at a distance. And these "routes" kept in mind, I think, may assist the practitioner of medicine in observing and investigating the effects of counter-irritation in disease, and lead to the formation of rules (so much wanted) in relation to the *kind* of irritation of the skin best in particular cases, and when, where, and how it should be induced.

As to the term "counter-irritation," at which some have taken exception, doubtless it is a bad one, if we confine ourselves to its literal meaning, and we must admit that it had its origin in false ideas; but how many of our scientific terms have secondary meanings connected with them much more

closely than—nay, to the exclusion of—the primary ones; meanings, moreover, which have changed with the requirements of scientific progress, and which in nowise mislead or hamper freedom of thought. I am sure we may claim that the *idea* involved in the practice of counter-irritation is by no means that of shaking a "red rag in the faces of malicious demons," nor of applying remedies to surfaces with the hope that by some magical influence they will affect "organs which lie in a substratum vertically below, *though without anatomical connections*," but it is rather that of modifying the vital activity of one part of the organism with a view to produce a modification favorable to health in the activity of another at a distance from but in demonstrable connection with it. And surely it is but natural that such an idea should present itself to our minds, seeing that modification of activity, and development of one part of the body in accordance with changes occurring in another, even when that other is structurally and functionally distinct from it, is a constantly occurring phenomenon, constituting those "sympathies" which have always attracted the attention of physiologists, though so little has been said in their explanation.

The blood vessels, lymphatics, and nerves are the obvious channels through which influences can travel from one part of the body to others at a distance; and whilst all who believe in the beneficial effects of counter-irritation invoke the agency of one or all of them to explain it, I do not think sufficient effort, and in the right direction, has been made to form an idea of the mechanism of their action, or to build up some hypothesis which may assist us in explaining, by their mediation, the advantages we believe we have seen from the use of blisters, croton oil, or other irritants to the skin.

One of the most constantly recurring conditions of tissues and organs, is a change in the circulation, by which more or less blood than in health passes to the part affected, and

flows through its capillaries with a rapidity which is above or below the normal standard. We look upon this alteration of the circulation in a diseased organ as so essential a part of its morbid condition that we turn our attention, in many cases, almost exclusively to combat it, and, in an external part, we extract blood, apply heat, cold, stimulants, astringents, etc., with the design of acting on its blood vessels, though, perhaps, not being always clear in our minds as to the exact changes we desire to bring about. Now we know that the amount of blood which goes to any part depends on the amount of contraction existing in the walls of the small arteries that deliver the blood to its capillaries (these last having no active contractibility in themselves), and that the muscular tissue of the walls of these arteries is supplied with nerves—the "vaso-motor nerves"—which thus regulate the amount of arterial contraction, and consequently the supply of blood. These "vaso-motor nerves" are generally spoken of as derived from the "sympathetic system," but we must bear in mind the very close connection of this system with the cerebro-spinal, and the large number of cerebro-spinal fibres found in almost every so-called sympathetic nerve. Indeed, it is probable that the most, if not all, of the motor fibres of the sympathetic system are derived from and influenced directly by the cerebro-spinal centres. We must conclude from experimental section and irritation of the spinal cord, that the vaso-motor nerves all run to this organ, and, passing upwards, are connected with a common centre, lying, most probably, in the medulla oblongata. This nervous centre, which presides over the vaso-motor nerves of the whole body, is in a continual state of excitement normally (probably acted on like the respiratory centre, by the carbonic acid of the blood), and thus maintains the smaller arteries in that state of tonic contraction most conducive to the delivery of the appropriate quantity of blood for the healthy nutrition of each organ. By an

irritation propagated to this centre from the periphery, its activity may be increased so as to produce extraordinary diminution of the calibre of the small arteries, even to their obliteration. Again, a centripetal irritation may have an "inhibitory" influence on this centre, causing its action on the vaso-motor nerves to diminish or cease; this will be accompanied by a dilatation of the arteries, thus permitting a greatly increased flow of blood through them, in accordance with the blood pressure in the aorta and its branches. A remarkable example of this inhibitory influence is seen in the experiments on the "nervous depressor," a branch of the vagus going to the heart, which being irritated, dilatation of all the fine arteries of the body follows. Now, that this centre may have its influence on the vessels of a particular region, increased or diminished, thus causing a diminished or increased flow of blood to that part, is obvious from the daily observed phenomena of transitory pallor, and coldness, redness, and warmth of portions of the skin, the effect of its reflected excitement or paralysis. Tholozan's experiment of dipping one hand in ice-cold water, thereby causing coldness, not of the whole body, but of the other hand, with contraction of its vessels, is an excellent example of the reflection and localization of the activity of the vaso-motor centre. Bernard's experiments on the submaxillary glands are examples of irritation of this centre through centripetal nerves, causing a cessation of its action, causing dilatation of vessels confined to one organ. Loven's experiments further show that when a cutaneous sensitive nerve is irritated, the impression can cause, by reflex action through medulla, either elevation of the tone of the vaso-motor nerves of the part (causing contraction of the arteries), or depression of tone (causing dilatation). And if "it is [see 'Journal of Phys. and Anat.'] impossible in the present state of our knowledge to foretell in what cases it shall increase or restrain the contraction," we have yet a most valuable indication of how

modified activity of one part may induce changes in another at a distance, and a standpoint from which to investigate the modus operandi of counter-irritation.

Though the effect of modified activity of the vaso-motor centre on the internal organs is difficult to investigate, enough has been observed to make us feel confident that impressions on centripetal nerve-fibers can be reflected from it to them in a way to modify notably their circulation. Brown Sequard has seen the vessels of the piamater of the cord contract from mechanical irritation of the kidney; Nothnagel found that electrical irritation of cutaneous nerves, such as the trigeminus and sciatic, causes contraction of the vessels of the piamater of the brain; and Pfluger that tetanic excitement of the anterior roots of the spinal nerves in the frog, caused very notable contraction of the arteries of the mesentery.

Now let us try and trace a route by which our counter-irritants, applied to the skin, may affect the vascular factor in the disease of an internal organ. And for the organs contained in the abdomen, although they have been asserted to "lie in a substratum vertically below though without anatomical connections" with the skin of the belly, that "it is easy to show that there is no direct communication by nerves or blood vessels between the skin" and themselves, I think their connections with the cutaneous surface most obvious of all. The skin over the abdomen is supplied by sensitive branches from the intercostal nerves, each of which is connected by interchange of fibers with the ganglion of the thoracic portion of the sympathetic, in proximity to it. From these ganglia are derived the splanchnic nerves, which are the vaso-motor nerves of the abdominal organs (indeed, the most potential vaso-motor nerves in the body), which also act as inhibitory nerves, though, under certain circumstances, as excitors, of the intestinal movements, and which finally exercise an undoubted influence on the secretion of the urine. It is to be remarked that four-fifths of the fibers of the

splanchnics are derived from the intercostal nerves, their anterior roots, only one-fifth from the sympathetic. Here, surely, we have "a conceivable route" for impressions made upon the skin to travel to the abdominal organs. Lovin's experiments show us that an irritation transmitted centripetally through cerebro-spinal fibers is reflected back upon the vessels of the part through the motor fibers of the same cerebro-spinal nerves. Is it extravagant to suppose that the irritation of the sensitive fibers of the intercostals should be reflected through the motor fibers, these nerves supply in such numbers to the splanchnics, and thus come to affect the organs of the abdomen? The application of mustard or other irritants to the skin of the belly, for the relief of pain arising from spasm of the intestines, is it mere superstition, or does it find an explanation in the reflex excitement of the splanchnics, causing cessation of the spasm, in virtue of their inhibitory influence on the intestinal muscles?* The route of influences from the skin to the thoracic organs will be fundamentally the same as for those of the abdomen, viz: an irritation propagated to the vaso-motor centre, to be thence reflected through the nerves upon the vessels of a particular organ.

It is true that we are very ignorant as to the exact effect on a diseased organ an excitement or paralysis of its vaso-motor nerves may produce, and indeed whether such an action will necessarily exercise a favorable influence on it; but, alas! how often is it that we cannot certainly say in what consists the variation from health, or what are the conditions we would modify if we had the power? Would we cause contraction of the vessels to "allow the overloaded capillaries to disgorge themselves," or bring about dilatation to force by a vis a tergo the blood into brisker circulation, and "relieve the congestion"? Is the pain we seek to mitigate caused by too much or too little blood to the nerves?

*Do not the reflex movements of the hands upon the belly, in one suffering from colic, point to this mode of relief?

What are the essential conditions of "torpid" or "irritable" organs? Why do "cells proliferate" abnormally? Meanwhile we have, in the traceable connection of the skin with the deep-lying organs through the nerves, and the reflex influence of the vaso-motor centre, sufficient explanation of the favorable effects of counter-irritation to shield from ridicule those who claim that these good effects have come within their experience, and, more than all, a point of departure for observation and investigation into the use of counter-irritants, which, we may hope, will more and more remove their application from the region of pure empiricism.

Our attention cannot be directed to the reflection of an impression upon the nerves which terminate in the muscular walls of the vessels without having recalled to our minds another mode in which nerves end, more obscure, but having probably a still more important connection with the effects of counter-irritation. I allude to the discovery of Pfluger (which seems to have been substantiated by others), that the nerves going to the submaxillary gland (nerves whose irritation, direct or reflex, modify the secretion of the saliva), end by blending the extremities of their fibers with the nuclei of the secreting cells of the gland. This termination of nerves, by direct continuity with cells, which is more and more recognized by histologists, (indeed, Ranke thinks it so common, that the nuclei may be regarded as nervous organs), gives strong support to the idea that an influence through the nerves directly affects the nutrition of organs and tissues, and allows us another "conceivable rout" for reflected impressions to reach, with their influence, the inmost recessess of organs. The subject of reflected impressions, which underlies the idea of counter-irritation, is indeed a vast one, and must needs be involved in obscurity, since it requires for its elucidation a knowledge of the functions of nervous tissues, the most complex and highly organised matter; but enough is known to enable us to investigate it intelligently, and hopefully.

THE FORCES OF THE CIRCULATION.

BY H. R. NOEL, M. D.,

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MANY eminent American physiologists believe, and teach in the different schools, that the heart is the *sole* force of the circulation; or at least that its contractions, in conjunction with those of the muscular coats of the arteries, are adequate to the explanation of *all* the phenomena of the circulation, both physiological and pathological. The "vaso-motor system" of nerves is the connecting, and, as it were, the *balancing element.* By this system we have periph era arteries and central propelling power brought into perfect unison of action, and the anatomical mechanism is complete. The next and most vexed question is that of the forces. Do the muscular walls of the heart and arteries act in obedience to the nervous system, and if so, pray, in obedience to what does the nervous system act? Light for the optic ganglia; sound for the auditory; odors for the olfactory; and *what* for the ganglia of the "vaso-motor system?"

There must be a cause for the action of the vaso-motor system, and we propose to eliminate it. The problem may be thus stated:

Given—"*The heart, arteries, capillaries, vaso-motor nervous system, and phenomena of the circulation, to determine the share of each, and the forces engaged.*"

Professors Dalton and Flint, of New York, hold about the following opinion, taken from "Flint's Physiology of Man," page 296:

"*It is evident, then, that the arterial pressure, which is itself derived from the action of the heart, is competent to produce the circulation of blood, as we observe it, with all its variations in the capillary vessels; that there is no evidence of the intervention of any other force; but, on the contrary, microscopic observation and experiments on the arteries and*

veins thus far show that there is no other force in operation;" and nine-tenths of the profession in America hold the same opinion.

Upon this view of the sufficiency of the heart's action, and of the fact that there is but one controlling force (*i. e.* ventricular systole), our pathology is to a great extent founded, and upon our pathology hinge our therapeutics.

Now we believe this to be false *ab initio.* We think that Professors Flint and Dalton—and we take these as leaders—have made a radical error in the physiology of the circulation, and that all pathology founded upon such a theory is erroneous in itself and intrinsically prejudicial to the advancement of medical science.

This discussion can be conducted under two separate heads:

1. *Is there no physiological evidence of the intervention of any other forces than the contractions of the muscular walls of the heart and muscular coats of the arteries?*

2. *Do microscopic observations and experiments on the arteries and veins demonstrate the absence of all other forces?*

As regards the first proposition, to begin, we assert that natural philosophy has its laws immutable in the organic as in the inorganic; as fixed in the vegetable as in the animal worlds; and that with the same physical conditions, like results are obtained in each. Upon this subject there can be no doubt. Any tyro in the study of natural philosophy, to whom the chemical composition of the blood and tissues, and physical mechanism of the circulation were explained, would at once assert the presence of the powerful forces seen in the osmotic action of membranes, and the capillary force of fluids in tubes. The capillary tubes and fluids—the membranes separating fluids of different chemical composition, with strong affinities for each other and for the membranes—fulfill all the necessary conditions, and these forces are developed as a physical necessity.

The osmotic action of a serous membrane, with proper chemical relations of fluids, is capable of producing startling results. Dr. Richardson found, by actual experiment, that the peritoneal membrane of a dog would take up and *force* into the blood vessels more than one-sixth of the animal's weight of water, and produce death, from extreme dilution of the blood, in from six to ten hours. The dog being weighed, one-sixth his weight of water was injected into the peritoneal sac, with death as the result; and the autopsies showed *empty peritoneal cavities*, proving that the physical conditions of osmotic action being complied with, *the action took place as certainly* in the *animal* as in the vegetable world, even *though the death of the animal resulted.* Here experimental physiology demonstrated the presence of another, and, as it happened, an overwhelming force—*i. e.*, osmotic force, exhibited in the form of an *endosmosis;* but we are all familiar with another exhibition of osmotic force, in the form of an exosmosis as we find, in the terrible discharges of Asiatic Cholera.

Professors Flint and Dalton acknowledge the presence of this osmotic force in the body, but ignore its action in the circulation.

Comparative physiology embraces, under organic life, the vegetable as well as the animal world; and in the nutritive processes of the vegetable, and in the nutritive processes of the animal, gives us only three forms of vital force—three manifestations of vital power, viz: 1. Assimilative; 2. Power of Propagation; 3. The Developmental.

By the power of assimilation the nutrient pabulum is transformed and incorporated with the organic germ, or nucleus, or mass of germinal matter, and becomes endowed with vital force—*i. e.*, lives.

By the power of propagation the organic germs, or masses of germinal matter, augment by budding, by subdivision, by endogenous development, or, rather, endogenous increase, yet retain as their birthright the *vital force of the parent.*

By developmental power the tissues are produced, and complex anatomical forms evolved. This is the last and highest form of expression of vital force.

These three expressions of vital force are common, therefore, to both the animal and vegetable kingdoms, and we propose to investigate their relations to the circulation of the pabulum in each.

Carpenter, in his "General and Comparative Physiology," and also in his "Elements of Physiology," teaches the circulation in the vegetable as being the foundation for the proper appreciation of the circulation in the animal. In vegetable cells there can be detected currents to and from a given point (a nucleus); and even at this early stage of organic life we find that the nucleus, or mass of germinal matter, is competent to produce a circulation in the *cell.* Ascending higher in the scale of organic life we find a gradual development of the circulatory system, and distinct capillary vessels bear a fluid to and from the leaves of the loftiest trees; the leaves acting the part of elaborating agents prepare this fluid for the nutrition of the tree, and for the production of fruit. In the ascending capillaries it is a *crude fluid;* in the descending it is *elaborated sap.*

By what forces are these circulations sustained? The answer is easy. We have no central propelling power, no central organ, and we look in vain for the "vis a tergo" of a heart, and can only decide that, in the organic processes of the "vegetable world," the vital force, calling to its aid osmotic and capillary force, is competent to the *production and management of the most extensive circulations*—to the development of most luxuriant specimens of organic life.

At this point the very pertinent question arises as to the forces of organic life in the animal world—are they different from those of the vegetable? In the latter we find vital force manifested under three forms—are there any other or any different manifestations of vital force in the animal?

It is impossible to answer this otherwise than in the negative; and we must conclude that the organic, nutritive or vegetable processes of the animal world involve but three manifestations of vital force—1. Assimilation; 2. Propagation; 3. Development—and the laws of organic life are the same, the histogenesis the same, the forces the same, irrespective of the kingdom. Our best physiologists teach this. Dr. L. S. Beale will place under the microscope nuclei or *nuclear matter* from *sea-weed* or *mucous membrane*, *a sporule* of *mildew* or a *white blood corpuscle*, and predicate the facts of *organic life* from *animal* or *vegetable specimen*, with no shadow of difference.

If, then, the forces are identical, and the processes identical, in the *organic life* of the two kingdoms, how happens it that *these forces*, so thoroughly *controlling* the circulations in the one, should be *abrogated* in the other?

How can we explain their potent influence in the one, and their utter impotence in the other?

But comparative anatomy and comparative physiology teach us that these forces are not abrogated in the animal world, and that certainly in the lower forms of life the circulations are still controlled by them. From the class *Protozoa*, and extending to some of the higher forms of the Radiata, even to the *Starfish*, we find no distinctly marked central propelling organ, but we do find capillary vessels, and even arteries *bearing blood;* this blood moving in obedience to the demands of the histogenesis, and, therefore, dependent upon the chemico-vital forces of nutritive assimilation.

The history of embryonic development confirms this same truth.

The egg of the domestic fowl contains two very different elements, viz: *an organic germ* and *a pabulum for its* nutrition. This germ has the power, when stimulated by heat from the maternal breast, or otherwise, of exhibiting the

three forms of vital force already mentioned, and of consuming the pabulum and producing a live animal. The first evidence of circulation is the formation of a capillary system upon the *vitelline membrane* and around the *germ*. This capillary system is spread partially over the yolk or pabulum. The blood is formed in the capillaries from assimilation of a portion of the yolk; then these small capillaries unite as they approach the *germ* (now an embryonic chick), and form arteries of some size. These arteries pass into the embryo and give it pabulum—blood for its development, *prior* to the *development* of a *heart;* and the osseous, circulatory, nervous, and digestive systems are laid in shadowy outline before one throb of the central organ has occurred. The capillaries, arteries, and veins of the *vitelline circulation*, and the very blood itself, are all developed before the heart, and from the capillaries, through arteries, the blood FIRST circulates TOWARDS the heart.

At this period the yolk is being consumed to form blood in the capillaries of the *vitelline circulation*, and this blood is borne to the embryonic chick, and affords a pabulum for the nutrition of the rapidly evolving systems of animal life; but the *force* of the circulation just at this time is *not* the *heart*.

Here we undoubtedly have, in a warm-blooded embryo, a circulation prior to cardiac pulsation. Now the forces that determine and govern this circulation have an existence in the vegetative or *histogenetic processes* of *embryonic life;* and there is no iota of proof of their *abrogation* from that period to *adult life*. We deny that any physiologist has ever shown, or can show, that the *forces developed in embryonic histogenesis are not found in adult histogenesis.*

If, therefore, these forces control the circulation in the earliest embryonic life, they control it in adult life; and the capillary circulation of the human adult is determined not by the force and frequency of the heart's action, but by the

histogenetic and histolytic demands of the periphery. The three expressions of vital force found in vegetative life obtain also in the organic processes of animal life, and as they determine the circulation in the one, they do also in the other. "*Ubi irritatio ibi fluxus*," can this flow be dependent upon the action of the heart?

The amount of blood in any given organ or tissue is not determined by the mere size of the artery, as a physical necessity, but by the activity of the histogenetic or histolytic processes. A gland does not secrete because it has more blood in it; but it has more blood because it has begun secreting, and the changes in the gland *demand more blood.*

The heart is eminently an organ of animal life. It bears little or no relation to organic life, but a direct relation to the muscular and nervous systems. It is developed in almost direct ratio to those systems, and has, therefore, an important bearing upon the animal functions.

We believe *it has no bearing whatever upon the capillary circulation in normal histogenesis and normal histolysis; no relation to the constructive metamorphosis;* that the systems of animal life are, as it were, *built* without any sort of necessity for a central propelling power; but, after their construction, the central propelling power is neccessary for their proper *working.*

The heart, therefore, belongs to the animal functions, and more especially to the locomotor. The sudden demands for oxygen in muscular efforts are met by the increased action of the heart. Rapid histolytic action, from any cause whatever, always gives this demand for oxygen, and the heart's action is increased; but even in these instances the heart only fills more rapidly the arteries; it cannot force the capillary circulation. It is the prior activity of the capillary circulation that determines the increased cardiac action, and not the increased cardiac action which determines the capillary circulation.

In a word, the truth is this, "THE HEART IS THE SLAVE OF THE PERIPHERY," and its action is determined and measured by the demands from the periphery, these demands being in exact accordance with the changes (usually histolytic). So far, then, from the heart being the one great controlling power, it has little or no influence over the capillary circulation, and its own action, both as regards frequency and force, depends upon the orders received from those very capillaries and tissues, *via* the vaso-motor system.

We conclude, therefore, that normal histogenesis and normal histolysis regulate and determine the amount of blood in any organ, irrespective of any direct influence from the action of the heart; that in abnormal or excessive histogenesis or histolysis the *demand* for *pabulum*, or the *demand* for *oxygen*, begins *primarily* in the *tissues*, as a direct result of either vital or chemical changes, and the vaso-motor nervous system reflects this demand, or bears this demand from tissues to the arteries, and also to the heart, and that the action of arteries and heart is a *secondary result.* Not only is this true, but the very frequency and force of the *ventricular systole* will be in direct ratio to this *demand* from the *periphery.* The heart can do no more than *fill the arteries;* the circulation in the capillaries is *not* determined by the "*vis a tergo*," but by the "*vis a fronte.*"

It is probable that three-fourths of the so-called functional diseases of the heart, and a large proportion of the irregular action in real organic lesions, depend upon abnormal histogenetic or histolytic conditions in the periphery. We are certain, that we have seen many such cases, resulting from malarial poisoning, rheumatic changes, etc., where the heart was perfectly intact; which cases responded promptly to quinia and iron, or alkalies and colchicum, but would have been not one whit improved by digitalis, valerian, etc.

Comparative anatomy, and comparative physiology, and

the history of embryonic development, give us conclusive evidence of the presence of other forces in the circulation; and we propose, in a subsequent paper, to adduce some evidence in support of this from the microscopic observations and experiments of such men as Virchow, Paget, Bence Jones, Lister, Simon, Marey, of Paris, etc.

OPERATION FOR FISTULA IN ANO,

BY WHICH ALL AFTER-TREATMENT IS RENDERED UNNECESSARY.

BY JULIAN J. CHISOLM, M. D.,

Professor of Operative Surgery in the University of Maryland.

IN the method for laying open a fistulous passage, whether a probe-pointed bistoury be used, cutting from the bowel outward, or whether the wall of the lower portion of the bowel be everted upon a flexible grooved director, so that the entire thickness of sphincter muscle may be divided, I propose no change. Either method is efficient for the division of all the tissues between the fistulous track and the rectal cavity. The change proposed protects the patient from hemorrhage, but is designed more especially to do away with the annoying after-dressings with which patients are so pertinaciously punished day by day, until the gaping wound made by the knife becomes filled with granulations, with a surface ready for cicatrization.

The daily insertion of a piece of lint between the lips of the wound, as still recommended in all standard works on surgery, is a very painful procedure, even in the hands of a delicate manipulator; but a plug of greasy lint, when thrust into an irritable anal orifice, according to the usual way of dressing such wounds, is the cause of much suffering. The sole object of this after-dressing is to prevent the immediate growing together of the newly-cut surfaces, and thereby en-

sure healing from the bottom. However carefully a small piece of lint is laid in the wound, it will always be found at the next examination, and very often in a few minutes after the dressing has been inserted, corrugated in the centre of the anal opening, leaving the surfaces of the wound in contact. It therefore does not fulfill the object designed. If a sufficiently large plug of lint is introduced to ensure the separation of the lips of the wound, it causes painful and annoying distention of the rectal outlet.

I was induced, many years since, to substitute for this annoying, painful, and inefficient dressing, a single application of the liquid persulphate of iron. This was used for the purpose of ensuring a surface-sloughing of the sides of the wound, just sufficient to preclude the possibility of the immediate growing together of the recently-cut surfaces, although close apposition be permitted. Long experience has sustained the utility of this application, and this plan of after-dressing, immediately after incising fistula in ano, is now extensively adopted by surgeons in the United States.

Immediately after making the incision, a large camel-hair brush, or a sponge mop, saturated with the liquid persulphate or perchloride of iron, is drawn through the wound, care being taken to bring the iron styptic cautery in contact with the entire surface. The effect is threefold:

1. To cauterize the surfaces and prevent agglutination of the newly-cut walls.

2. To arrest hemorrhage.

3. To clot the blood in the wound, and oppose this physical barrier to the approximation of the surfaces.

Should the hemorrhage be very free, it may be necessary to secure in the wound, for a few hours, a compress of lint, saturated with the iron styptic.

Beyond this immediate and single application of the iron, no further local treatment will be required. Daily ablutions, either with cold or warm water, as most agreeable to the

patient, will be needed for cleanliness. For ordinary cases of fistula in ano, it will not be necessary for the patient to keep the bed, nor even the house, for any length of time; and often business can be resumed the day after the operation.

SELECTED ARTICLES.

ACIDUM PHOSPHORICUM DILUTUM:
ITS PHYSIOLOGICAL ACTION AND THERAPEUTIC USES.

BY JUDSON B. ANDREWS, M. D.,
Assistant Physician in the New York State Lunatic Asylum.

WE present a few statements of others in regard to the circumstances affecting the excretion of phosphoric acid, in a state of *health* and of *disease*.

The average daily amount excreted in health, as determined by various observers, is 3.5 grammes, or about 54 grs. Vogel says this is increased by the ingestion of soluble phosphates, of substances capable of being converted into phosphoric acid, or of the acid itself; also, that it is much greater under an animal than a vegatable diet. Mosler states that this amount is doubled under the use of a diet rich in nitrogenous elements, and also that increased activity of the nutritive functions, or of the kidneys, or both, largely increases it.

Vogel has made observations in more than a thousand cases of disease, and his conclusion may be thus briefly stated. There is a large increase of this acid in those diseases, in which there is increased metamorphosis of the phosphorus containing tissues.

Chemical analysis demonstrates the fact that the nervous system is largely supplied with phosphorus. It is also as liable to destructive changes in disease as any of the tissue of the animal economy, The amount of phosphates which load the urine after a period of mental fatigue, is in excess of that attending muscular exercise, even when severe and long continued.*

* Our attention has been directed to the paper of Dr. Wood, as published in the transactions of the Connecticut State Medical Society. His experiments seem to prove that the amount of phosphoric acid is not increased in the urine from ordinary mental efforts. They are however physiological; and, as the Doctor himself says, in no one of the experiments was mental effort carried to the point of fatigue.

In insanity and other neuroses, we would look for the most marked changes in the excretion of the phosphates. Dr. Southerland,* after extensive analyses of the urine in the insane, has given the following general conclusions:

1. A *plus* quantity of phosphates exists in the urine, in the paroxysm of acute mania.

2. A *minus* quantity exists in the stage of exhaustion in mania, in acute dementia, and in the third stage of paralysis of the insane.

3. The *plus* quantity of phosphates in the urine in acute mania, denotes the expenditure of nerve force, and is not a proof of acute inflammation in this disease.

In acute mania we have increased cerebral activity, generally carried to the point of fatigue and weariness. This condition corresponds with the maximum excretion of the phosphates.

In dementia, or mental enfeeblement, and in acute mania with exhaustion, when mental activity is at its minimum, the secretion of phosphates is diminished beyond that of a state of health. These conclusions coincide in a most marked degree with the most recent investigations on the excretion of urea, considered as a measure of the metamorphosis of muscular tissue. This is most marked when muscular exercise has reached the point of fatigue. We may thus deduce the general facts, that in cases of cerebral activity, characterized by fatigue or weariness, there is increased excretion of phosphates; and that in diseases involving destruction or decay of nerve tissue, there is also increased excretion of the phosphates.

That in cases of mental exhaustion or enfeeblement there is diminished secretion.

The last statement is but the converse of the other two, that while the cause has ceased operating the effect is no longer observed. It, however, makes manifest the treatment to be adopted, to repair the waste which the nervous system has suffered, and again bring the secretions to a normal standard. To do this we have the means pointed out in the ingestion of food rich in nitrogenous elements, of substances capable of being converted into phosphoric acid, or of the acid itself. The former of these methods has always been resorted to by practitioners; the latter has attracted little notice.

To demonstrate the physiological action of the remedy, from one to three drams of the acid were given, and observations were made at

*Beal on Disease of the Kidney and Urinary Deposits, p. 209.

intervals of from fifteen minutes to one hour. *Within the first interval there is an appreciable increase in the force of the pulsations, though there is little change in the number during the whole time of experimentation. The increase is most marked after the lapse of from one to two hours, and it is not till after several hours that the pulse returns to its normal condition. The first experiments I made upon myself, beginning with twenty drops, and continuing the use of the remedy in increased doses till the amount of four drams was reached. The sensations experienced on taking from forty drops to three drams were those of moderate alcoholic stimulation. There was slight pain through the frontal region, and a buoyancy and lightness of feeling rather agreeable. When a larger dose was taken there was a feeling of drowsiness, an inclination to lie down, and an unwillingness to undertake mental labor.

This continued for some hours. From these experiments we may conclude that this remedy is a stimulant general in its character, but with a special tendency to the nervous system.†

It also exercises a marked control over the vaso-motor system, as will be shown further on. * * * * *

Additional force is manifest in the heart's action in all cases where the traces were taken, and in others the same fact was evidenced by the general appearance. From our experience we think it properly placed in the category of nerve tonics. The therapeutic uses of this remedy, as given in the books, are briefly as follows: It has been, in common with the mineral acids, considered a tonic and refrigerant. It is recommended to allay the thirst attending diabetes; also to remove the unusual deposits in exostoses, and as a tonic in typhoid fever. Macnamara says that, of all the mineral acids, it is one "the prolonged administration of which the system will best tolerate;" a fact which is to be accounted for by its presence in flesh, and especially in food from the vegetable kingdom; and it is to the absence of this acid from the diet of sailors that scurvy is in a great measure to be attributed. It has been ascertained that lemons owe their superiority over citric and tartaric acid to this

*Some sphygmographic illustrations are here omitted.—*Ed.*

† The following extract is from the "Dict. Sciences Medicales":

"The primary influence of phosphorus is exercised upon the nervous system, of which it increases the sensibility; from that it reacts upon the entire economy, and particularly on the circulatory system; the pulse is developed, heat augmented, the strength is increased."

ingredient. At the asylum the use of this remedy has been in disorders of the nervous system, as a brain and nerve nutriment and tonic. It is given on the theory that phosphoric acid furnishes direct food to the nerve tissues; for, as a medical writer has tersely remarked, "we can starve the brain by withholding phosphorus." The quantity of this element found in nervous matter varies considerably at different periods of life. By analysis, the minimum is found in infancy, in old age, and idiocy; or, in figures, phosphorus in the brain of infants amounts to 0.80 of one per cent.; in youth to 1.65; in adult life, 1.80; old age, 1.00; in idiots, 0.85. In insanity there are some conditions which sustain a close resemblance in mental characteristics to the enfeeblement of age, and others to a state of idiocy. In cases marked by increased mental activity, there is following this a period of mental weakness or enfeeblement which usually bears a certain relation in degree to the prior excitation. Were the patient acutely maniacal, from this state of exaggerated mental action and tension, the mind passes to one of apparent inaction, of more or less complete relaxation. The patient is said to be dementing. He may be profoundly indifferent to external things, perhaps even to the demands of nature, and need the care bestowed on infants. The physical signs of the state are well marked. The appetite is generally good, and the power of digestion unimpaired. Adipose matter often increases rapidly to a marked degree. The facial expression is changed; those lines which in health indicate mental life and character, and make manifest the soul that animates the body, are more or less effaced; the countenance loses expression, and sometimes resembles the face of a man drawn on the flat surface of clay rather than that of a human being endowed with life and mind. The action of the skin is impeded; it is often unctuous to the sight and touch, and loses more or less completely its sensibility and elasticity. In fact, as a nervous expansion, it is measurably paralyzed. The circulation is disturbed in common with the other functions of the animal economy. In the extremities of the body, the ears and lips, there is a passive congestion, often so marked that the skin is of a dark-blue color, cold to the touch, and sometimes swollen almost to bursting. The lips are enlarged and everted, and a well-marked line exists separating the congested external surface from the internal mucous lining. Such are some of the more prominent physical signs present

in dementia. This is a period of nervous exhaustion, of reaction from the increased mental and physical activity which marked the previous state of the disease. At this time tone and vigor must be supplied to the prostrated system, and, in the accomplishment of this, phosphoric acid is of material service. Nature has made provision for the repair, in the generally unimpaired and often greatly increased vigor of the digestive function, and may be effectively assisted in this process of restoration by the employment of this acid, as a nerve nutriment. * * * * *

Among the first cases which impressed me particularly with the influence of this remedy, soon after my entrance on duty at the asylum, was the following:

A young man, 28 years of age, of more than ordinary intelligence and education, worn down with the labor of an extensive business connection, was admitted with acute mania, with strong suicidal tendencies. His attempts at self-destruction were various and often repeated: one cut upon the wrist barely failed to reach the radial artery. Several times he dashed his head against the wall and the floor, with the idea of inflicting injury. Restraint and constant vigilance were necessary for his protection. After a few weeks the violence of the attack seemed to subside, and he passed into a well-marked condition of dementia.

His head was downcast; his countenance and extremities presented the usual physical signs elsewhere enumerated. He became very filthy in his habits, passing his excrements in his bed and clothing. His condition was such as would seem to present little hope of recovery. He was given the acid in 20-drop doses. After a week he refused it, and for a short time it was discontinued. There being no improvement in his condition, the remedy was renewed. A week from this time improvement was manifest. He began to talk, at first with hesitation; said his head was mixed; that his mind could not grasp anything; that everything seemed to retreat from him. He appeared confused, and put his hand to his head in a perplexed way. The mind slowly regained its strength, and the patient, in passing to recovery, again became suicidal. On one occasion he was found suspended from the bed-post, and nearly strangled. Renewed vigilance was now demanded to prevent the accomplishment of his designs upon his life. From this condition he gradually emerged, and became rational in speech and manner.

The acid was continued, during the greater part of his convalescence, in doses of thirty drops, to which it had been raised. After a period of ten months' treatment in the asylum, he was discharged, fully recovered.

Another patient was received into the asylum suffering under melancholia, with the following history: He had recently failed in business, and, during the settlement of his affairs, lost much sleep, and became depressed. About three weeks before admission, while sitting in the garden one afternoon, he suddenly manifested great excitement, and made attempts to commit suicide. All instruments by which this might be accomplished were removed from his reach. The paroxysm soon passed, and the patient was quiet but gloomy; said he was to be cut up; that his flesh was to be stripped from his bones. He refused food and drink for three days in succession; his secretions were much disturbed, bowels constipated and urine retained. He slept little, and for some nights before admission not at all. At times he was much excited, obstinate and difficult of care, and often tried to denude his person. In the asylum he was at first dull and stupid, stood quietly in the ward with his head down and silent. He was careless in dress and uncleanly in his habits. When visited by friends, he recognized them, and said he was in Albany at the hotel. He again refused food, saying it was a sin for him to eat; that the Lord had told him not to. He was forcibly fed. Soon after he had a paroxysm of frenzy, in which he threw himself around in the most furious manner, and endeavored to kill or seriously injure himself. This he persisted in till overcome with the exertion. From this time he suffered less acutely and soon passed into dementia, well marked in both the mental and physical characteristics. He sat all day in the ward without speaking or noticing any person or thing; had no distinct recollection of his home or family. He gained in flesh, ate and slept well, became filthy in his habits. At this period of the disease phosphoric acid was prescribed in half dram doses. After some months improvement was manifest. The congested lips and extremities assumed a more normal appearance, and the sluggish circulation again approached a healthy standard. Increased mental life and greater regard for personal cleanliness were manifested. From that time to the present, now about three months, improvement has been gradual but well characterized, and the pa-

tient, judging from present progress, will soon regain his mental integrity, and be restored to his family, who long ago gave up a belief in his recovery or permanent benefit. He still takes the acid. This case is given as it was one in which the prognosis was for a long time very unfavorable, and which seemed to derive marked advantage from the remedy.

Many instances of like character might be adduced to prove the efficacy of the remedy. The congestion of the extremities and lips, which has been mentioned as peculiar to this state of dementia, is attributed to a partially paralyzed condition of the vaso-motor system.

This opinion has long been entertained and advanced by Dr. Gray, the superintendent, and by him my attention was first directed to the fact, that the depth of color and capillary congestion was not due either to defective oxygenation of the blood, or to interrupted or sluggish transmission of nerve force, as electricity had little or no influence. The conclusion therefore seemed warranted that it was a paralysis of the peripheric vaso-motor nerves, dependent on deficient nerve nutrition.

The power of the acid over this nerve tissue is demonstrated by its affording, so generally, a relief to the overloaded capillaries of the more remote portions of the body. In the milder forms of prostration, when the reaction from nervous excitation is less marked, the effects of this remedy are equally apparent.

* * * * * * *

Cases are sometimes under treatment at the asylum, and more frequently in private practice, especially from among literary, professional or business men, which are characterized by loss of mental power from excessive brain activity. The patient is languid, unable to perform mental labor with the usual facility, is nervous, at times fearful, timid and agitated, the memory is weakened and permanent impairment threatened. Examination reveals no organic lesion, but the symptoms are such as justly occasion alarm. Such cases have been improperly called, by some recent writers, cases of cerebral paresis, a term too strong in its import, but expressive of the great danger which impends. For the recovery of these cases, relaxation from business and labor, and the use of the phosphoric acid, combined with some suitable tonic, generally suffices.

In cases where mental effort has been protracted till a sense of weariness renders its continuation difficult, a dose of the acid, from its stimulant effect, relieves fatigue and seems to invigorate the mental powers, and prepare the mind for renewed exertion* In the night sweats attending consumption, and other exhausting diseases, this acid is employed with benefit, and has some advantages over the aromatic sulphuric acid, so generally used. It is much more agreeable to the taste, more likely to be tolerated, and does not constipate the bowels. The anti-scorbutic power of this acid is well settled. A marked case of purpura occurred in the asylum recently. The patient had been an inmate for several months, and though eating the ordinary diet of the house, in which vegetables are bountifully supplied, became scorbutic. The gums were red and spongy, there was lassitude, soreness of the muscles, and an eruption presenting the form of petechiæ and vibices upon the anterior of the chest and the inner surface of the thighs.

The patient was given the acid in half dram doses, and in two weeks entirely recovered. In cases of anæmia and chlorosis, in both of which there is a depressed condition of the nervous system, phosphoric acid in combination with ferruginous tonic, has been found especially efficacious.

At the asylum, as an adjuvant for the solution of quinia in water, phosphoric acid is now substituted for sulphuric acid, with the advantage of increasing the tonic properties of the solution. In giving quinia, we have in cases marked by great nervous prostration, and accompanied with profuse perspiration, found this acid in half dram doses a valuable addition, and one that seems to increase the power of the alkaloid. To the ordinary elixirs, tinctures, and decoctions of bark, the acid forms an important aid, and by its acidity it overcomes, to a great degree, the unpleasant taste of the vegetable bitters.

Observation here confirms the views of Nelligar and others, that this substance exerts no direct influence on the generative function.

*A professor in one of our medical schools in a letter to Dr. Gray recently, remarked: "Wonderful thing, that phosphoric acid, and well named by me, psychological lemonade. My lunch at noon (we dine at six) consists of rich cheese, bread, and a glass of phosphoric acid lemonade; and on that I have worked eight and nine hours a day, with my pen, for the past seven weeks, in this hot weather, without headache or any depression. I never take over fifteen drops, and only once a day, and when fatigued. It is wonderful how quick it climbs into the anterior lobes, scatters capillary congestion, and satisfies the hungry tissue with its own pabulum.

It has thus been employed on theoretic grounds; but any favorable influence it has exerted has probably been owing to its general tonic effect. We have used it extensively, and in cases where this function was abnormally excited; and in no instance has its administration been suspended from this cause, or has any inconvenience resulted from its use.

Phosphorus in substance is now recommended in many of the journals, in some forms of paralysis, in locomotor ataxy, and in other of the neuroses. It is an element difficult to dispense and dangerous to administer. In the stomach it is converted largely into phosphoric acid. It is from this change taking place in the stomach that the danger is to be apprehended. Is it not better to employ the acid, which in proper doses is harmless, than to incur the risk of consequences in giving phosphorus in substance?

In the administration of this remedy one general principle should be kept in mind, viz: Not to exhibit it in cases of congestion of the brain, or in those in which there is an inflammatory action, either in the nerve substance or the meninges, as its stimulant effect might prove an aggravation to existing disease. In no case in which it has been given, has it disturbed digestion, or proved an irritant to the stomach, even when its administration has been prolonged.

When the remedy was first employed at the asylum, the dose was ten drops three times a day; this has been gradually increased till now the standard dose is a half dram. This is given in water alone, or with simple syrup, with which it makes a pleasant and agreeable lemonade. The large doses spoken of were thus taken. In the various combinations with other remedies, the dose varies from ten to twenty drops. A favorite tonic remedy, which makes an eligible preparation, and one very palatable is as follows:

℞.—Acidi Phosphoric. Dil..... 1 oz.
Elix. Calisay..... 4 oz.
Elix. Valer. Ammon..... 2 oz.
Glycerinæ..... 3 oz.
Sherry Wine..... 6 oz.

Dose, from one-half to one oz.

It is from an experience in the use of this remedy in more than two hundred cases, extending over a period of several years, that confidence has been inspired in its general adaptation to the treatment of diseases marked by debility of the nervous system.—*American Journal of Insanity*.

PROF. HUXLEY AND DR. BEALE ON PROTOPLASM.

BY B. RAY LANKESTER, B. A., CH. CH., OXON.

THE eloquent lecture "On the Physical Basis of Life," which Professor Huxley gave before a popular audience in Edinburg, last January, has been made the subject of a somewhat severe attack by Dr. Lionel Beale, in a communication read to the Microscopical Society of London, and published in its Journal for May, 1869. Dr. Beale seeks to show that Professor Huxley has misrepresented the usual meaning of the term protoplasm, or has given it a new and absurd signification, in conformity with a preconceived physical theory of life. Meanwhile there are persons who have been asking, What is protoplasm?—even some of those who should know well enough already.

Dr. Beale's attack on Professor Huxley, therefore, complicates matters, since it lends some show of reason to the doubts and difficulties expressed by certain uninformed readers of the "Fortnightly Review." I wish here, as an independent student, to state, in opposition to the criticisms of Dr. Beale, that it did not appear to me, in reading the printed lecture of Professor Huxley, that he had used the term protoplasm in any other than usual, normal, and legitimate signification; and I gather from that lecture that Professor Huxley's definition of protoplasm would probably exclude and include exactly the same things that Dr. Beale's would. Dr. Beale has criticised Prof. Huxley's broad and general statements—admirably adapted to the comprehension of a general audience—as though they contained a full confession of his faith qua cell structure and histology generally. This, I submit, with the greatest deference to Dr. Beale, is hardly fair; and as his communication to the Microscopical Society appears to misrepresent the views of the highest authority on biological science in this country, I venture, not forgetting the sincere regard which all microscopists must have for Dr. Beale, to reply to the criticisms. Probably, as far as those are concerned who have read the lecture and know Professor Huxley's views, and the exceeding improbability of his making the announcement attributed to him, these notes will be superfluous; but there are some to whom they may be useful.

The charges which Dr. Beale makes may be noticed consecutively. He says (p. 279, Roy. Micros. Society, May, 1869): "Still

more recently Von Mohl's primordial utricle has been called protoplasm by Professor Huxley, who, some years before, restricted the term to the matter within the primordial utricle." Again: "I think Professor Huxley is the first observer who has spoken of the cell in its entirety as a mass of protoplasm, and the only one who has ever asserted that any tissue in nature is composed throughout of matter that can be properly regarded as of one kind. Further, Dr. Beale attributes the following notions to Professor Huxley: "No matter how many different things may be comprised in the cell or elementary part, no matter in what essentially different states these things may be, no matter how different parts may differ in properties, they constitute protoplasm. A muscle is protoplasm; a nerve is protoplasm; bone, hair, and shell are protoplasm; a limb is protoplasm; the whole body is protoplasm. No anatomical investigation is necessary to enable us to detect this substance. Every beast, fowl, reptile, worm or polyp that we see is protoplasm. Everything that lives or has lived is protoplasm" (p. 282). Leaving out of the question Prof. Huxley's numerous published writings, in which other views are very fully and carefully expressed, as Dr. Beale admits, I would ask, does the language used by Professor Huxley fairly admit of the interpretation put upon it by Dr. Beale? It certainly does not, in my opinion, and conveyed no such meaning to my mind in reading the article in the "Fortnightly," as it apparently has done to Dr. Beale. The passages from which parts are quoted by Dr. Beale, and on which he bases his charges against Professor Huxley, are these: "Thus, a nucleated mass of protoplasm turns out to be what may be termed the structural unit of the human body. As a matter of fact, the body, in its earliest state, is a mere multiple of such units, and in its perfect condition it is a multiple of such units variously modified. * * Beast and fowl, reptile and fish, mollusk, worm and polyp, are all composed of structural units of the same character, namely, masses of protoplasm with a nucleus." "Corpuscles of essentially similar structure (to the white blood corpuscles) *are to be found* in the skin, in the lining of the mouth, and scattered through the whole framework of the body." The italicised words and sentences are not given by Dr. Beale in his quotations, and it seems to me that they imply all which Dr. Beale declares to be ignored. Professor Huxley tells his audience that in development the protoplasm of the structural units become *variously modified*, and Dr. Beale ignores

this, though this modification amounts to the difference between Dr. Beale's "living" and "formed" matter. Had even no such statement been made, it is impossible to see how Dr. Beale derives his conclusions from what he quotes, when we remember the circumstances under which the lecture was delivered. Again, it certainly does not appear to follow logically that Professor Huxley declares protoplasm and horn to be identical, from his statement that corpuscles ESSENTIALLY (that is, in their most important characters, as far as relates to the inquiry in hand,) the same as white blood corpuscles ARE TO BE FOUND in the skin, &c., which, of course, Professor Huxley was well aware, is largely composed of horny scales, the result of the modification (which he recognizes) of the protoplasm.

It may be here remarked that Haeckel has not included the simplest animated beings in the genus Moner, as stated by Dr. Beale, on page 282, but that his Monera is a group embracing many genera.

On page 284 Dr. Beale imputes a view to Mr. Herbert Spencer, based on a single quotation from his grand work on "Biology," which the whole work does not warrant, and which the sentence quoted does not seem really to imply: "The microscope has traced down organisms to simpler and simpler forms, until, in the Protogones of Professor Haeckel, there has been reached a type distinguishable from a fragment of albumen only by its finely granular character." Distinguishable by the microscope, of course, and by chemical analysis, as Dr. Beale allows, is Mr. Spencer's meaning. Mr. Spencer shows himself fully alive to the difference of other properties between living and dead matter, and I cannot see what erroneous implications exist in Mr. Spencer's statement.

Professor Huxley compares the chemical analysis of what was once living matter to the chemical analysis of a crystal of calcite, and says, as we call the crystalline form and property an attribute of carbonate of lime, so may we call living form and property an attribute of certain proportions of carbon, hydrogen, oxygen and nitrogen, combined in a certain but undetermined manner. So in the case of water, we do not suppose an entity "aquosity," to enter into oxygen and hydrogen when they become water; why should we suppose an entity, "vitality," for the combination of the elements to form protoplasm? Dr. Beale objects to this, (page

285,) that crystalline force is not *identical* with vital force—an objection which he himself terms trivial, and which does not seem to invalidate the utility or significance of the comparison made by Professor Huxley. With regard to "aquosity," he says, "of water there is but one kind, of protoplasm there are kinds innumerable." It may be replied that there is dirty water and clean water, pure water and water holding matter in solution; if these are not kinds of water in the same sense as the "kinds of protoplasm," perhaps it is a distinction of living properties to which Dr. Beale alludes as e. g. between animal and plant protoplasm. There is no reason to suppose that such a difference is not due to a difference of molecular structure, paralleled by allotropy.. "The constituent elements of water may be separated and recombined again and again as many times as we please; but the elements of protoplasm, once separated from one another, can never be combined again to form any kind of matter," (page 286.) Much less than one hundred years ago water could not be formed from its elements, as to-day protoplasm cannot in the laboratory; but protoplasm is continually being formed from mineral matters in plants.

Dr. Beale asks, "Are the properties of the elements in dog so different from those of the elements in man as to account for the differences between dog and man?" He seems to imply that Professor Huxley ought to answer "yes" to this, in accordance with his teaching, and that such a response is very ludicrous. But it is difficult to see what there is incongruous with the scientific knowledge of the day that a chemical compound should exhibit a diversity of properties in diverse cases. Returning to the person of his criticism, Dr. Beale says, "Mr. Huxley seems to maintain that protoplasm may be killed and dried, roasted and boiled, or otherwise altered, and yet remain protoplasm." Mr. Huxley did not seem to me to maintain this at all, though, because special and technical words were not used by Professor Huxley, there is an opening for criticism. Professor Huxley is very careful to speak of mutton, lobster, &c., when eaten as "dead protoplasm," and to ignore the fact that he makes this distinction is hardly just. But overlooking important qualifying adjectives—such as *modified* (see above) and *dead*—an author's meaning can very readily be misapprehended. What Professor Huxley really says and means is seen in this passage: "Now this mutton was once the living protoplasm, more or less

modified, of another animal, a sheep. As I shall eat it, it is the same matter *altered*, not only by death, but by exposure to sundry artificial operations in the process of cooking." Again: "Convert the *dead* protoplasm into living protoplasm." There is no deliberate assertion here of any community of property or chemical constitution of the dead and living matter; but, obviously for the purpose of carrying on the mind, and to enable the hearer or reader to follow the rapid description of the process of nutrition, the word protoplasm is used and qualified by adjectives, instead of a new and distinct term being employed. Dr. Beale would have had Professor Huxley substitute the expression "converted into various sorts of formed material," for the simply "*modified*," and for "dead protoplasm;" he would require the insertion of a list of the chemical compounds, albuminoids, &c., obtainable from roasted mutton, dissolved in the alimentary canal, and ready for absorption.

The method of drawing conclusions exhibited in this paragraph from Dr. Beale (page 286), is hardly admissible: "Mr. Huxley says, 'all protoplasm is proteinaceous; or, as the white or albumen of an egg is one of the commonest examples of nearly pure protein matter, we may say that all living matter is more or less albumenoid.' If the white of an egg is living matter, why should not its shell be so considered?" Now, surely no one will agree with Dr. Beale in imputing to Professor Huxley the assertion that "the white of egg is living matter." Dr. Beale's logic runs thus: 1. All protoplasm is proteinaceous, (Huxley). 2. White of egg is proteinaceous, (Huxley). Therefore, according to Huxley, 3. White of egg is protoplasm. This certainly is not what Professor Huxley concludes himself, but merely—therefore we speak of protoplasm and white of egg as albumenoid, substituting this term for proteinaceous.

Page 287: "He (Professor Huxley) also went so far (in 1853) as to remark that 'vitality is a property inherent in certain kinds of matter.'" This he has consistently—and there is no great virtue in consistency—continued to do in 1869, though Dr. Beale does not seem to think so. Such seems to me to be the very text of the Edinburg lecture—understanding by vitality what is more simply called life.

The foregoing observations are made with the utmost deference

to Dr. Beale. I have thought it right to reply to an interpretation of statements, which, no doubt, is a genuine impression derived from the study of Professor Huxley's lecture, but which I, in common with many others, have not been led in any way to admit as a correct one.—*Quarterly Journal of Microscopical Science.*

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

LECTURES ON SOME OF THE APPLICATIONS OF CHEMISTRY AND MECHANICS TO PATHOLOGY AND THERAPEUTICS. By H. Bence Jones, A. M., M. D., F. R. S. London: John Churchill & Sons.

In a few prefatory remarks on the "Correlation and Conservation of Energy in the Body," which he illustrates by the correlation of heat and mechanical motion in the steam engine, Dr. Jones remarks, in a somewhat sanguine spirit, we think, "In plants and in animals the same law of the indestructibility and the correlation of force offers a new and vast field for experimental investigation into the relationships of the forces that are in action, and promises to unfold much, though *possibly not all*, of the mystery that is comprehended under the word 'life.'" It certainly is possible that we may not clearly comprehend "all of the mystery" of "life" for many years to come, even with the additional light cast upon it by the great law of the correlation of force—a law by whose aid much may assuredly be made plain that is now difficult of explanation, but the "mystery of life" will, we apprehend, still remain a "mystery," in spite of this or any other law known, or likely to be known.

The general purpose of the work seems to be the determination of the chemical origin of certain diseases, with the interaction between this vitiated chemistry and its mechanical results. Among diseases of this class are mentioned: "Diabetes, acidity; the production of oxalic acid, uric acid, uric oxide, cystine, fatty degeneration, gout, rheumatism, inflammation," which are called "simple errors of oxidation," that are occasioned by the introduction from without, or the generation within the body, of substances calculated to interfere with—increase or diminish—that oxidation which is so essential to the health of the body.

Excess or deficiency, or impairment of quality, of the nutritive material, with "wrong chemistry" in the assimilative act, "constitute," he says, "a multitude of chemical diseases, some of which at

of lithium, which in six hours gave lithium everywhere, in six days ceased to be detectable in the lens, and that even in three days the lithium is most probably diminishing in the lens." A little longer time is shown to be necessary for the passage of lithium into a cataract.

Not content with determining the time required for the diffusion of these alkaline substances in various parts of the body, Dr. Jones proceeds to inquire, "What does the lithium or other alkaline salt do whilst it is in the textures? In other words, what is the action of alkalies in the system"? To which he replies: "I have shown you how alkali out of the body promotes oxidation. The chemist can have no doubt that the same action takes place in each particle of the textures to which the alkali is carried."

Dr. Jones is of the opinion that of all diseases diabetes is the "best example of a purely chemical derangement of health," since mechanical complications rarely occur at any period of either the most simple or most aggravated cases, and after death neither structural change nor chemical alterations are found, whilst throughout the disease, impaired functional and nutritive power are directly related to the "loss of saccharine fuel," and that to cure the disease it is only necessary to ascertain the chemical conditions—and the mode of obviating them—on which the formation of sugar depends.

The physiological saccharine changes are briefly these: Every particle of starch that is received into the stomach is converted by the action of the saliva and pancreatic juice into sugar, which is further changed into carbonic acid and water to be eliminated by the lungs, kidneys, and other emunctories; and the disease essentially consists in the arrest of this last change, the digestion of starchy matter remaining the same. This change of sugar into carbonic acid and water, which should take place "in the circulation and in the parenchymatous structures," is arrested, part of the sugar remaining as such in the textures, whilst part is eliminated by the kidneys with the urine; and that active force, which is the result of this change that should take place, remains "latent," and is lost nutritive power to the system.

"The conditions on which the changes depend are chiefly three: 1st. The proper temperature. 2d. The presence of a not immoderate quantity of sugar. 3d. The presence and activity of the proper ferment."

To the first of these conditions Dr. Jones thinks but little importance can be attached, since the thermometer does not show sufficient variation of temperature to account for any great influence from this cause.

In the second place, temporary diabetes may be occasioned by the injection of sugar into the rectum, or by the use of food rich in saccharine elements; and, furthermore, the amount of sugar from this source, and from the changes going on in the textures is at all times greater than can be entirely changed.

"Thirdly, the ferment, the prime cause of change, has not yet been isolated. Whether it be the albuminous substance of the saliva or pancreatic fluid, or some other of the many albuminous substances in the blood, it requires for its action heat, the presence of alkali, and an undisturbed circulation of the changing fluid." Referring to the interesting experiments of Bernard, in which irritation of the floor of the fourth ventricle was shown to increase the quantity of sugar in the urine; and of Schiff, showing that "diabetes results from injury of the vaso-motor nerves of the abdominal organs which arise from the thalami optici and the crura cerebri;" and that temporary diabetes was occasioned by cutting the posterior roots of the cervical portion of the cord, and permanent diabetes from cutting the anterior roots, by which paralysis of the vaso-motor nerves is occasioned, giving rise to congestion of the vessels of the liver, and the consequent "excessive secretion" of glycogen; he goes on to remark: "The permanent diabetes may be thus occasioned; but it is far more probable that the temporary diabetes is owing to the mechanical injury of the nervous system so affecting the vessels that the chemical changes are interrupted. The same phenomenon is seen in every fermentation. The chemical action is temporarily stopped when the fermenting fluid is dis turbed by any sudden change." We are left in ignorance of the nature of the mechanical injury which produces this arrest of chemical action, as well as the means of avoiding or remedying it; nor do we see with what propriety a disease is called "purely chemical" when the chemical error is at once referred to a mechanical cause, of the nature of which we know nothing. Surely all diseased action is associated with morbid chemical changes, and the term "purely chemical" must be accepted, if at all, in a qualified sense. Saccharine food is not necessary for the development or mainte-

nance of diabetes, since the sugar may be supplied from the "amyloid substance in the liver," and "inosite in the muscles, lungs, brain and other organs." Dr. Jones divides this disease into stages, resting on the assumption that the sugar formed from the animal structure more readily undergoes the requisite chemical changes in the animal body. Hence his first stage, is that in which the sugar received in food does not undergo the final change into carbonic acid and water, and the second stage, is that in which the sugar of animal origin also remains unchanged. "Diabetes, then, in its mildest or first form, is the loss of power to change the sugar of the food; in its more advanced or more intense form, it is the loss of power to change the sugar produced in the organs and textures of the body, as well as in the food."

In the treatment of this disease Dr. Jones has but little to suggest beyond what is already familiar to all who have studied the literature of this subject. Diet is, of course, given the first place, and a tabulated statement of the per centage of saccharine matter in different articles of food is supplied. Alkalies associated with iron, since they, more than all other remedies, promote the oxidation of the sugar, rank first, and opium for the purpose of allaying "thirst and the craving for food," is recommended. Rennet, pepsine and various other remedies are referred to with very qualified commendation.

Dr. Richardson's experiments with oxygen gas inhalations are mentioned, but do not seem to have been attended by any very happy results.

We regret that our space does not permit us to follow Dr. Jones further in his interesting investigations, but trust we have said enough to interest our readers in his peculiar views. He does not claim for animal chemistry, as yet, any very potent influence in the solution of the mystery of disease, but is hopeful of great aid from it as the results of observation accumulate. "Moreover, even now the knowledge of the chemical and mechanical actions in the body is in its infancy; but it daily grows, and will grow stronger, broader and deeper, until it will carry away our present theories of medicine, and will bring us new materials for the construction of a perfect building." L.

AIKEN; OR, CLIMATIC CURE. By Amory Coffin, M. D., and W. H. Geddings, M. D. Charleston, S. C. Pages 58.

THIS work is intended to show the advantages of Aiken, South Carolina, as a winter resort for consumptives; it is pleasantly written, neatly printed, and contains a complete history of the little village, with some very useful general information as to phthisis pulmonalis and its climatic frequency.

From this pamphlet, we learn that Aiken is partly in Barnwell and partly in Edgefield county, South Carolina; is six hundred feet above the sea, and at the highest point on the South Carolina Railroad, one hundred and twenty miles northwest of Charleston; has a dry atmosphere, equable temperature, bright sunlight during the winter months, dry sandy soil, many of the wells being from ninety to one hundred and fifty feet deep, and the *ground drying in a few hours after the hardest rains;* is "very much scattered," therefore well ventilated; has good livery stables, several fair hotels, and a large number of private boarding houses, the latter being, prior to the war, the villas and cottages of Southern Planters, who, during the spring and summer, made Aiken their place of residence.

The equable temperature, dry atmosphere, sandy soil, pine barrens, brightness of the sunlight, from the great purity of the air, and the marked preponderance of clear days, constitute the attractions as a winter resort. The consumptive is enabled to remain for hours in the open air daily, breathing a dry and pure atmosphere under an excellent sunlight, thus securing the most favorable hygienic conditions possible.

Drs. Coffin and Geddings claim to have proved in this work:—

1st. That a very warm climate is more injurious even than a very cold one, and that one of medium temperature is best.

2d. That sudden changes of temperature are injurious if extreme, but that moderate variations are more beneficial than a monotonous equability.

3d. That the most unfavorable winds are those charged with most moisture, viz: the eastern and northeastern.

4th. That civilization and its attendant evils, comprised in the term *ochlesis*, promote the frequency of the occurrence of consumption.

5th. Which is a corollary, of the previous proposition—that the more crowded a population is, the more prevalent is the disease.

6th. That moisture, whether of atmosphere or soil, is the injurious agent, both in its production and development.

Also:

1st. That dryness is the first attribute of a good climate for consumptives.

2d. That elevated positions are much to be preferred to low levels.

3d. That fresh and pure air is indispensable to consumptives.

4th. That Aiken possesses, in a very high degree, those qualities found to be most beneficial.

Table showing the difference between the Mean Temperature of Aiken and other places of the United States.

Mean temperature of		Aiken, is	61°.69	Difference.
"	"	New York,	50°.09—11°.60	colder.
"	"	Boston,	48°.20—13°.49	"
"	"	Portland, Me.,	45°.00—16°.69	"
"	"	Newark, N. J.,	48°.39—13°.30	"
"	"	Philadelphia,	53°.46— 8°.23	"
"	"	Cincinnati,	54°.07— 7°.62	"
"	"	St. Louis,	53°.50— 8°.19	"
"	"	San Francisco,	57°.43— 4°.26	"
"	"	Princeton, Min.,	39°.60—22°.09	"
"	"	Charleston, S. C.,	64°.35— 2°.66	warmer.
"	"	Savannah,	64°.26— 2°.57	"
"	"	St. Augustine,	69°.46— 7°.77	"

We will find next, if we compare it with that of those places in Europe which are most resorted to by pulmonary invalids, that the difference is very slight, all of them coming within a few degrees one way or the other. This is a point of some little importance, as it shows that we come between the isothermal lines which long experience has shown to be the best suited to our invalids.

Thus the mean annual temperature of

Palermo is	62°.70, or 1°.01	warmer	than	Aiken.
Pisa,	60°.60, or 1°.09	colder	"	"
Nice,	59°.00, or 2°.69	"	"	"
Venice,	56°.40, or 5°.29	"	"	"
Maderia,	65°.40, or 3°.71	warmer	"	"

As most of our guests are in the habit of spending only the six winter months with us, it may be more interesting to them if we select the temperature of the colder half of the year in other places, and compare it with our own during that period.

The mean temperature of Aiken for the cold season being 51°.63:

That of	New York is	35°.40, or	16°.23	colder than	Aiken.
"	Cornish, Maine.	26°.16, or	25°.47	"	"
"	Worcester, Mass.,	31°.95, or	19°.68	"	"
"	Newark, N. J.,	35°.88, or	15°.75	"	"
"	Philadelphia,	39°.30, or	12°.33	"	"
"	Chicago,	33°.88, or	17°.75	"	"
"	Cincinnati,	38°.70, or	12°.93	"	"
"	St. Louis,	40°.11, or	11°.52	"	"
"	St. Paul, Minn.,	21°.21, or	30°.42	"	"
"	Florida,	62°.06, or	10°.43	warmer	"

As before, we will carry the comparison over to that of the most noted resorts for consumptives in Europe, and we obtain the following encouraging results:

The mean temperature for the six colder months of

Nice is	51°.80, or	0°.17	warmer than	Aiken.
Palermo,	51°.60, or	0°.03	colder	"
Pau,	49°.26, or	2°.37	"	"
Pisa,	49°.00, or	2°.63	"	"
Madeira,	56°.00, or	4°.37	warmer	"
Venice,	41°.42, or	10°.21	colder	"

During seven years, *i. e.* from 1860 to 1868,

The prevailing	wind	was	from S. W.	in 39	months.
"	"	"	N. E.	" 18	"
"	"	"	W.	" 15	"
"	"	"	E.	12	"
"	"	"	S.	4	"

The statement, &c., above made, contain about all the practical information to be derived from a perusual of the work, and as climatic influence in the treatment of phthisis pulmonalis is attracting a great share of attention, we deem it well to place them before the profession, leaving each to form his own opinion.

H. R. N.

MISCELLANEOUS.

ENDOSCOPY.—Sir Henry Thompson, in speaking of endoscopy, says:—"An attempt to look at a stricture has frequently been made by surgeons, with the hope that the eye might aid them to guide a small instrument through a narrowing which had baffled all trials by the unaided hand. Various methods have been adopted in France and America, as well as in this country; but the speculum now made for the purpose is essentially that employed in London by Mr. Avery, of the Charing Cross Hospital, five-and-twenty years ago. The manner of applying artificial light to it has been varied and improved by Desormeaux, of Paris, and Cruise, of Dublin; while a very simple and efficient form has been more recently devised by Mr. Warwick, in which sunlight and gaslight are available as well as the spirit-lamp. After a long and careful study of this instrument, I am compelled to record my belief that much more has been said in favor of it than it deserves. I have never yet found it of the slightest service in stricture. I have no means of expressing my conviction of what the instrument in its present form is worth for this complaint, more truly or practically than in the words I employed in a clinical lecture on the subject last year in University College Hospital, and which I will therefore venture to quote here: 'If a man has a good and a tolerably practised hand, with a fair share of intelligence, I do not think he will gain a great deal by the endoscope; and if he has not, I think it will be of no use at all. There are some few cases in which he may find it of value; but do not expect that the endoscope is going to work any marvels in the diagnosis of surgical diseases of the urinary organs. In nineteen cases out of twenty you ought to be able to arrive at the necessary information without it—and it is not the easiest thing in the world to apply. As already remarked, a man should not be put unnecessarily to the pain and inconvenience of a sound or a catheter; but examination by the endoscope is a somewhat more irritating and

tedious process. In certain exceptional cases, in which you are unable to arrive at a conclusion without it, you may employ it to some advantage.'"—*British and Foreign Medical Chirurg. Review.*

HYDRATE OF CHLORAL is the drug at present exciting most attention. As yet, we know nothing very definite in regard to its action. M. Bouchut says it is a sedative to both motor and sensitive nerves. He says that if the chloral is not crystallized and sufficiently purified to disengage, under the influence of potash, chloroform fumes without the liquid becoming colored, it is impure, and may be dangerous. He says it ought not to be given to adults in doses larger than five grammes (77 grs.), and that to infants, not more than one or two grammes (15 to 30 grs.) ought to be administered. It may be given *per orem* or *per anum*, the latter mode being said to be more rapid in its action. It is dangerous to administer chloral hypodermically in man. Arterial tension is always augmented during the sleep induced by chloral. The urine passed after a chloral slumber is neutral, and does not reduce the copper of Fehling's solution. Twenty-four hours afterwards, however, the urine is more dense, and it reduces the copper of Fehling's solution like a temporary glycosuria. The action of chloral is precisely that of chloroform, but it is produced more slowly, and lasts much longer. In some it produces all the symptoms of drunkenness; in almost all slumber, rarely associated with hyperæsthesia, more commonly with a remarkable degree of anæsthesia. The degree of anæsthesia seems to depend upon the dose employed; two to five grammes (30 to 77 grs.) according to the age, producing such complete anæsthesia, as to permit of the extraction of teeth, or the painless application of the Vienna paste. Chloral is also the most prompt and efficacious remedy in those cases of intense chorea, where the constancy and severity of the spasmodic movements threatens the life of the patient.—*Gazette Hebdom.*, November, 1869.

[In our hands, thirty grains have proved a safe and admirable hypnotic; a less dose has never sufficed, and only in one case have any unpleasant symptoms been developed; these were, insensibility, with coldness and rigidity of the extremities—phenomena which occasionally occur in the chloroform narcosis. Pure chloral must be very cautiously administered in doses over thirty grains. It seems to have no influence, save a merely temporary one, over the spasmodic movements of chorea.]—*Edinburg Medical Journal.*

STRUCTURE OF PANCREAS.—M. Gianuzzi, in the Academie des Sciences, Paris, Session May 31st, 1869, presented the following as the result of his researches on the intimate structure of the pancreas:

1. The excretory canals of the pancreas have very thin walls, lined interiorly with a cylinder epithelium. They have not the same connections with the secreting vesicles as in the salivary glands, but form around them a network composed of very fine tubes which have no epithelium and which encircle with their meshes the pancreatic cells. This network may be compared to that of the biliary passage of the liver.

2. The network of excretory canals of the different vesicles which form one glandular lobule are connected with one another and constitute a common network.

3. The blood vessels of the pancreas follow in general, with their terminal ramifications, the course of the pancreatic passages. They surround the vesicles and lobules of the gland with their capillaries, which are interposed between the meshes of the secretory passages.

4. The pancreatic vesicles have no walls.

5. The pavement epitheleum of the vesicles is composed of flattened cells with a nucleus and a process. They are, in short, very similar to those of the salivary glands, but their nucleus is more easily distinguished, and their protoplasma is more granular and encloses fat granules.

6. I have not found in the granular vesicles of the pancreas of the dog, in which I have made my researches, the semilunar body which I first discovered in the submaxillary gland of the same animal.—*St. Louis Med. and Surg. Journal.*

ON THE THERAPEUTICAL USE OF DIGITALIS.—Dr. S. Kersch, of Prague, has employed digitalis in twelve cases of pneumonia, five of pleurisy, and fifteen of typhus. In the two former, as long as the exudation continued, he found that there was no effect upon the pulse, but always on the discontinuance of the exudation the result was remarkably beneficial. In typhus the pulse became only irregular, but never diminished in frequency. Dr. Kersch found digitalis especially useful in those cases of cardiac disease in which the chief feature was an organic change in the valves or openings,

and in which the pulse was accelerated, generally small, and always irregular, so that a few powerful and slower pulsations alternated with some weaker, smaller, and more rapid ones. After a continued use of the digitalis the pulse became in such cases not only slower but also completely regular, strong, and uniform. An important condition for the employment of digitalis, according to Dr. Kersch, is that the blood should be in a normal, that is to say, uninflammatory state, and that the patient should not be cachectic, leukæmic, or anæmic, for in such cases Dr. Kersch has never observed any success to follow the use of the drug, unless the poisonous effects produced by increased doses can be considered desirable results. As to the cases in which the digitalis was employed unsuccessfully, Dr. Kersch believes that the influence of the drug on the permanently altered nerves is rendered nugatory, because by their continually deficient or abnormal nutrition as a result of the preceding long-continued anæmia, or of the abnormal constitution of the blood, as, for instance, in its structure or its proportional amount of fibrine, an irreparable alteration is developed.—*Schmidt's Jahrbucher der Gesammten Medicin.*

THE ACTION OF QUINIA.—Dr. Bing has published in a separate brochure, his experimental investigations on the action of quinia. The important results he obtained, and the additional facts which have been elicited since he first announced the remarkable properties of this remedial agent may be summed up as follows:

1. Quinia exercises an antiseptic influence on the blood, and checks the fermenting process going on in this fluid.

2. It also impedes the transformation of various solutions of emulsin and amygdalin into sugar.

3. The escape of the white blood corpuscles in inflammation is stopped by the introduction of quinia.

4. Another antiphlogistic property of quinia is the reduction of temperature.

5. The reason why this remedy often fails to produce its antizymotic and antiphlogistic effects, is owing to the small dosage. From 12 to 15 grains at short intervals are requisite.

6. For therapeutical purposes it is preferable to use the neutral, or rather the muriate of quinia, on account of its greater solubility. —*Med Controlbl.* 11.

EFFECT OF ALTITUDE ON THE TEMPERATURE OF THE BODY.—In a series of carefully conducted "observations on the temperature of the human body at various altitudes, in connection with the act of ascending, by Wm. Marcet, M. D.," the following conclusions were arrived at: That in a state of rest, alterations in atmospheric pressure do not materially affect the temperature of the body, which remains unaltered at different altitudes.

That the act of ascending has a tendency to lower the temperature, particularly during fasting, and when the ascent is rapid, breathing quick, and perspiration copious; that this loss of temperature is quickly recovered after a few moments' rest, without reference to altitude, thus demonstrating that the reduction is due to muscular effort, and not to difference of atmospheric pressure. And finally the practical conclusion is drawn, that the mountain sickness from which many people suffer, is usually associated with a reduced temperature, and is directly due to it; and that the most effectual remedies are good food, warm clothing, and rest.

The best precaution to take against mountain sickness is, obviously, to eat plenty of good substantial food, and to repeat the meals at short intervals.—*London, Edinburg and Dublin Philosophical Magazine.*

ANALYSIS OF INFANTILE URINE.—The chemical and microscopical examination of the urine of twenty perfectly healthy infants, at the breast, gave the following results, which, when compared with the composition of healthy urine of the adult, offer some interesting points:

	Adults (Kurne) in 24 hours.	Infants in 24 hours.
Quantity of Urine	1500	305
Specific weight	1020	1006.
Water	14.40	302.656
Solid matter	60	2.044
Urea	35	1.410
Uric acid	0.750	0.150
Chlorate of soda	16.500	0.211
Chlorine	10.013	0.128
Phosphoric acid	3.500	0.067
Earthy phosphates	1.200	0.063
Lime and magnesia	0.397	0.025
Sulphuric acid	2 000	0.036

It will be noticed from this table that the urine of infants contain

comparatively a large quantity of water. The solid substances are much diminished, and uric acid is relatively increased. Among the inorganic constituents which show considerable diminution, the earthy phosphates present the lowest figure, which is owing to their retention in the system for the supply of muscle and bone.—*Jahrb. of Kinderkr.* 1869.

Good News for Dissectors.—In the *Times* for January 7, there is an account of Gamgee's new process for preserving meat, which may afford a valuable hint to anatomists. The process consists in the exposure of the fresh carcase, cooled to 50° Fahrenheit, to the fumes of carbonic oxide and nitrogen, and afterwards leaving it in a chamber filled with the vapor of sulphurous acid, for from seven to twenty days, according to the size of the animal. Meat so prepared keeps good from three to twelve months, at a cost of two to three pence for a sheep, or a shilling for a bullock. Why should not unclaimed bodies be so preserved during the summer, so as to keep up a good supply of subjects for the dissecting rooms in the winter? The expense of the plant and method are said to be inconsiderable, and if it be found to be available for human subjects without disturbing the natural appearance of the parts, the boon to anatomists of a constant supply of fresh bodies capable of preserving their freshness for many weeks will be very great—*Med. Times and Gazette.*

Iodoform.—Dr. Fereol praises the soothing effects of iodoform in chancrous ulcerations; and he also found that this remedy promotes cicatrization. It is best employed in the form of powder, especially in torpid, atonic ulcers. As much of the powder as will adhere to the ulcer is used, which is then covered by a bandage, to prevent too rapid evaporation. In six cases of soft chancre, at different stages, he obtained by this means a speedy cure. A large number of syphilides, as ecthymia, rupia, rhagades, and tubercles, were thus successfully treated.—*Bul. de Ther.*

Iodide of Iron.—Faucher recommends manna as the most suitable vehicle for the administration of iodide of iron. Pills or lozenges, composed of this preparation, can be easily made with manna, which retain for a long while their characteristic green color and never get hard.—*Gaz. d'Hop.* 55.

TREATMENT OF DEFORMED CICATRICES.—M. Bourget observes that cicatrices which constitute a most unsightly deformity are often, either from their position or character, unsuitable for treatment by the bistoury, and describes a mode of procedure from which he has derived great advantage during the last eight years. It consists in the combined employment of cauterisation, compression by means of collodion, and what he terms the Swedish gymnastics. 1. *Cauterisation.*—Only the slighter caustics are to be employed, as nitrate of silver, chromic acid, or tincture of iodine to which a fifth of iodide of potassium has been added. The object is merely to produce a superficial action, so as to avoid the prolonged suppuration and ulceration which would ensue on the application of the stronger caustics. The exuberant portion of the cicatrix, bridle, crest, unsightly inequality of the skin, or whatever other form the cicatrix may assume, is rubbed with one of the above substances, taking care to confine the application to the projecting or deformed portion of the cicatrix, continuing it sufficiently long, or repeating it if required a second or third time. 2. *Compression.*—A few minutes after the cauterisation a layer of collodion is spread over the whole of the cauterised parts, which on drying exerts a strong compressing power on the cicatrix. If the compression after the collodion has dried does not seem sufficient, a second and even a third layer should be applied, care being taken, as with the caustics, to limit this to the surface of the cicatrix which it is desired to modify. In some cases, in order to make more energetic and continuous compression, after the layers of collodion have been applied, a strip of goldbeaters' skin, or some very fine linen rag, strongly imbibed with collodion, may be used. Next day or the day after, if the dried collodion has cracked or the strip become loosened, a new layer is to be applied, and so on for succeeding days, if the compression become relaxed. At the end of seven or eight days the collodion separates as a dry parchment-like crust, together with a superficial eschar, consequent on the cauterisation. The cicatrix will be found presenting a more uniform surface, while its prominence is less considerable. A renewal of the application may now be made, or, which is usually preferable, the patient may be allowed to rest for a few days, the interval being employed with gymnastics. 3. *Swedish gymnastics.*—This term seems a little misplaced for the shampooing process the author has in view. It consists in rub-

bing, compressing, displacing and softening the cicatrix by means of the fingers, applied in every variety of direction until the patient can no longer endure the pain produced. This operation should be repeated several times a day, the patient executing it himself if he thinks proper. After this treatment has been continued some days, the cauterisation and compression are again to be resorted to, and alternations of these and of the shampooing are to be continued until the deformity of the cicatrix has disappeared or has been sufficiently ameliorated.—*Bulletin de Therapeutique and British and Foreign Medico-Chirurg. Review.*

On the Propagation of Phthisis.—M. Villemin has lately read a memoir on this subject before the Academie de Medecine, in which he gives the results of a series of experiments. 1. By the inoculation of the liquid matters of the expectoration of the phthisical. A large proportion (three fourths and three fifths) of rabbits thus treated became turberculous. 2. By the inoculation of the dried matters of the expectoration of the phthisical. When the sputa slowly dried were inoculated no result followed. The author concludes that their virulent properties had been destroyed by putrefaction. But when sputa rapidly dried were inoculated on three rabbits they became phthisical. By sprinkling a blistered surface with dried powdered sputa, one of several rabbits experimented on was made phthisical. The blowing of powdered sputa into the trachea by a small opening was followed in two out of four rabbits by tubercle. Powdered sputa kept in a damp chamber for four months did not produce turberculisation in animals inoculated with it. 3. By the inoculation of the sweat of the phthisical. The animals died of suppuration without tubercle. 4. By the injection of tuberculous matter and of phthisical sputa. Rabbits fed with tuberculous matter both from man and another rabbit became tuberculous in the proportion of three to five. Four guinea pigs that had eaten forty grammes of phthisical sputa had all their organs sown with tubercles. One died suddenly from intestinal hemorrhage, dependent on a tuberculous ulceration. The following are some of the author's conclusions: Glanders is the affection which has most points of resemblance to pulmonary tuberculosis. In glanders the contagious matter is the discharge. The expectoration of phthisis is analogous to the discharge in glanders, and it is most probable

that tuberculosis is propagated in the same manner as glanders. When the expectoration of the phthisical is received into vessels and carried away by sewers, &c., it putrefies and becomes innocuous. But too often it is thrown upon the earth, or upon impermeable surfaces, or retained in dwelling houses, trodden under foot, and resolved into a dust, which soon infects the air in confined places. Too often it is received on handkerchiefs, linen, earthenware, &c., and by rapid drying the virulent matters acquire the most favorable physical conditions for infecting. Expired air seems no more capable of transmitting the disease than it is of conveying glanders. The virulent principles of both diseases do not seem volatile enough to be conveyed by the air. The discharge from the air-passages and sputa are the visible and tangible agents of contagion. Phthisis does not spread amongst the attendants in the consumptive hospitals of London, because the expectorated matters are received and thrown into places where they decompose. In ordinary hospitals bed clothes and linen may be a means of transmission. But the most favorable conditions for contagion are to be found in the dwellings of the poor, and in common habitations, such as barracks, convents, prisons, ateliers, &c., where sweeping the floors raises in the form of dust any discharges that may have fallen. The alleged more frequent transmission from husband to wife than from wife to husband, the author explains by the fact that the woman remains more constantly at home, and brushing and cleansing the places which may have been soiled by the expectorated matters. The author concludes that the prophylaxis of phthisis may be summed up in avoiding the morbific agent and augmenting the resistance of the organism.—*Gazette Med. de Paris and British and Foreign Medico-Chirurg. Review.*

TRACHEOTOMY IN SYPHILITIC LESIONS OF THE AIR-PASSAGES.—M. Trelat relates two interesting cases in which this operation was performed with success, and furnishes a historical summary of the subject. His general conclusions are: 1. Syphilitic lesions necessitating tracheotomy may arise at any period of syphilis, but they are most frequently met with in the tertiary. Their nature, seat, and extent vary, but still they are more common the nearer the superior orifice of the larynx is approached. 2. The onset of the symptoms of obstruction may be sudden, but in general it is rather

slow, and should be observed with attention, as furnishing an element in the diagnosis. 3. An attentive consideration of the symptoms, and of the signs which characterise obstructions to the larynx and those of the trachea, show that it is possible to distinguish these two orders of lesions, which it is of such importance to recognize in relation to prognosis and treatment. 4. Their diagnosis is based upon the retention or disappearance of the voice, the period of appearance of the dyspnœa, and the laryngoscopic examinations. 5. Tracheotomy is attended with excellent results in laryngeal obstruction, but up to the present time it has always failed in tracheal obliterations. 6. When the operation is indicated it should be performed without delay, as death may be the sudden consequence of a suffocative paroxysm. 7. Although tracheotomy offers so little chance of success in strictures of the trachea, it should, nevertheless, be attempted after a diagnosis which may be rectified and rendered precise, during the course of the operation. 8. This may be modified according to the nature of the lesions, and success can only be hoped for when it is possible to penetrate and oblitérate the stricture by means of an appropriate canula; otherwise the result must be fatal. 9. When tracheotomy is succeeded by recovery, the time during which the canula should be retained varies with the nature of the lesion. It must be removed as soon as possible after the operation, the medical treatment being continuously pursued. 10. The employment of Broca's canula (having its opening limited during inspiration) allows of an exact appreciation of the period at which it may be removed and the wound allowed to heal, without incurring danger.—*Gazette Hebdomadaire and British and Foreign Medico-Chirurg. Review.*

FEEDING BY THE NOSE IN FEVER.—Every physician must be familiar with a complication of fever, especially typhus, which frequently occurs, viz: real inability, or obstinate refusal from delusions, to swallow the milk, beef-tea, etc., so absolutely necessary to successful combating of the disease. Mr. Tennent, of the Glasgow Fever Hospital, recommends (*Glasgow Medical Journal, November*, 1869) in preference to all the artificial methods heretofore adopted, that of nasal feeding by passing a gum-elastic catheter through the nose into the œsophagus, and then using an ordinary glass syringe. The nasal passages present an entrance over which

the patient has no control whatever, either during or after introduction. The only conditions to be attended to in its use are: 1st. To oil it. 2d. To see that it is not too flexible, as if so, it is apt to bend in all directions and thus be more difficult to pass. 3d. To remember that it may be passed into the larynx; its presence there generally produces irritation and coughing; and, moreover, air passes through the catheter. 4th. After the catheter is introduced, to watch that it does not slip back through the nares. A string attached to the catheter will guard against this possibility. 5th. If the catheter is not readily passed by the one nostril, try the other. —*American Journal of Medical Sciences.*

DISCUSSION ON VACCINATION.—The Imperial Academy of Medicine has been engaged in a protracted and exhaustive discussion regarding vaccination. The editor of *L'Union Medicale* (Jeudi, 9 September, 1869) gives, in the following propositions, the practical results of this elaborate debate.

1. That the degeneration of the Jennerian vaccine has not been proved.

2. That there does not exist a single authentic case of vaccinal syphilis, properly so called.

3. That the rare—very rare cases of syphilis inoculated by vaccination are explained by conditions which completely exonerate the vaccine from all influence therein.

4. That a great number of cases of pretended syphilis occurring after vaccination are exceedingly doubtful.

5. That animal vaccination, as a source of vaccination, may be encouraged, although it does not possess any real and sensible advantage over vaccination from arm to arm.—*American Journal of Medical Sciences.*

NEW USES OF THE HYPODERMIC SYRINGE.—At a meeting of the Society of Physicians in Vienna, June 5, 1868, Dr. Mader spoke of the usefulness of this instrument for drawing out liquids for diagnostic and other purposes. *Allgem. Med. Central Zeitung*, No. 50, 1868.

He has made use of it for the purpose of obtaining blood for examination from cholera patients, and in making a diagnosis in a case of ascites, in which a doubt existed whether chronic peritonitis or cirrhosis hepatis caused the dropsy. The character of the liquid

proved it to be a case of cirrhosis. In another case, an abscess in the region of the shoulder, with secondary venous congestion, was emptied with the instrument. He also pumped out a chronic serous exudation from the pericardial sac of an aged female; the first operation yielded a few ounces of liquid, and relieved the urgent symptoms; at a second trial, three ounces were removed. The patient died soon afterwards, as she had also hydro-thorax. Mader thinks that the operation deserves much regard, as it is easily performed, and attended with comparatively little danger. Autopsy revealed the two spots of puncture in the pericardium cicatrized; they had produced no injurious consequences. In future operations the canula should be provided with a stop-cock, so that air may not enter when the body of the syringe is detached in order to empty it; and the body of the syringe might be made of greater capacity.

He furthermore used a similar syringe for the operation of transfusion, and performed this by plunging the sharp canula into a vein turgesced by pressure; superficial veins were chosen. In order to avoid throwing the blood into the cellular tissue, he recommends that a few drops from the vein be first allowed to escape from the detatched canula; when this has taken place we may be sure that the vein has been entered, and we then attach the body of the syringe and gently throw in the blood, or other liquid used for transfusion. He injects at several spots until enough has been entered, and says that patients submit to repeated punctures much more willingly than to the operation of laying bare the vein selected, and then opening it for the application of the syringe, which not only appears more formidable to them, but may be followed by phlebitis.—*Edinburg Medical Journal*, November, 1869.

A Simple and Easy Method of Ascertaining Death.—The Marquis d'Orches having offered a premium of twenty thousand francs for the discovery of a practical method of ascertaining death, available even in the poorest hamlet, Dr. Carriere, of St. Jean du Gard, presented the following, which he states he has put in practice for the last forty years, viz: Placing the hand with the fingers closely pressed one against the other, within an inch or more of a lamp or candle; if alive, we observe the hand to be transparent, of a rosy hue, and capillary circulation or life, in full

play. If, on the contrary, we place the hand of a dead person in the same relation to light, we do not perceive any of the above phenomem; we see but a hand of marble, without circulation, without life.—*Jour. de Med. et de Chirg.—Edinburg Medical Journal.*

TREATMENT OF ITCH IN THE PRUSSIAN ARMY.—Dr. Schultz has suggested the following: Rectified spirit of wine, 2 drachms; liquid styrax, 1 oz.; olive oil, 1 drachm; for two applications. According to the author, the styrax does not spoil the linen; it has no disagreeable odor. Two frictions, at from twelve to twenty-four hours' interval, are sufficient, but they should be performed with much care. It is necessary to cover with the liniment the entire surface of the skin, with the exception of the head, and not to miss a single fold of the skin. During the treatment the patient is prohibited from washing, so as to prolong the contact of the remedy. *Edinburg Medical Journal.*

TREATMENT OF LACERATION OF THE PERINEUM.—Dr. John Brinton, Surgeon to the Royal Maternity Charity, London, contributes a paper to the *Glasgow Medical Journal* for November, 1869, in which he advocates the sewing up of the rent immediately after delivery. He narrates three cases so treated, and remarks: 1st. That the result of the *recent* operations is very satisfactory. 2d. That the operation is very easy. 3d. That it is comparatively free from danger, and is nearly painless, requiring no chloroform, because the parts which have been torn are in an anæsthetic state, being benumbed by the pressure they have recently undergone.—*American Journal of Medical Science.*

ON THE ACTION OF ANÆSTHETICS.—M. Claude Bernard, to whose admirable methodicity in performing scientific experiments, and sagacity in seeing their results, medicine owes so much, has of late been engaged in determining the effects of morphia and of chloroform, and of their combination or successive administration. He finds that morphia puts to sleep, but it also produces a peculiar form of excitement; an animal narcotized by this alkaloid, requires but a minimum of chloroform to produce insensibility; and a subcutaneous injection of hydrochlorate of morphia rapidly induces insensibility in an animal being brought under the influence

of chloroform. Bernard believes that the sensitive cellule (whatever that may be) requires for the production of anæsthesia the contact of blood mingled with a certain amount of chloroform, but the act of elimination constantly removing this substance, sensibility as constantly tends to return, and is only prevented from doing so by the blunting effect of the morphia which suffices to preserve the anæsthetic action of the small amount of chloroform actually in the blood. On the other hand, when chloroform prolongs and re-establishes the somniferous action of morphia, when it ought normally to cease, M. Bernard believes that this arises because animals under the influence of morphia are peculiarly sensitive to the action of chloroform—M. Bernard says, because of the excited condition of their reflex excitability. This is difficult to conceive; the fact nevertheless remains the same, and is of importance to all who employ anæsthetics.—*Gazette Hebdom., November*, 1869—*Edinburg Medical Journal.*

Poisoning by Carbolic Acid.—Dr. W. H. Barlow had a case where a man, probably while in a state of intoxication, swallowed carbolic acid in solution. Inside the lips, the tongue, and palate were whitened and hard. The stomach was contracted, and the mucous surface of the stomach was corrugated, so that it resembled the ridges upon the palate of an ox. The author is of opinion that the poison was swallowed in mistake, and that the death was sudden, owing to the shock which followed upon the direct injury to the stomach. Carbolic acid was found in the stomach, the acid seeming to cling to, rather than to be mixed up with, the contents of the viscus.—*Lancet.*

Snake Poison.—Dr. Fayrer, in his researches on snake poison, gives an experiment, from which he concludes that the injection of ammonia into the jugular vein "hastened, if it did not cause, death." Respecting a very interesting question, viz: whether the poison of a poisonous snake will prove innocuous to another poisonous snake, the author comes to the conclusion that he must have further and convincing evidence before he assents to an affirmative view on the question. Of this, however, there can be no doubt, that the effect of the poison on a venomous snake is much less active than on an

innocent one.—*Indian Medical Gazette* for July, and *Scientific Opinion*, Sept. 1, 1869.

GERMAN pharmacists publish analyses of patent medicines as the best mode of warfare against this increasing evil. Of those of real medical value they publish the proper value in money, which is, invariably, far below the one asked.—*Pharmacist and Chemical Record, and Boston Medical and Surgical Journal.*

EDITORIAL.

A DISPOSITION to indulge in speculation far beyond the limits warranted by the facts at our command seems to characterize the medical, as well as other scientific minds of the day. Theory outruns observation, who comes plodding slowly behind, bearing the fruits of knowledge and wisdom.

He who simply records the facts of observation, leaving to others the duty of determining the value of those facts, and their place in the great sum of human knowledge, is commonly held to be of a lower order of mind than the speculative philosopher, who associates them into a comprehensive system. Hence the tendency of the many is to gain for themselves a more honorable name, by establishing some new doctrine, rather than to win from the domain of the unknown a new truth, forgetting, that theories based upon nothing, must come to nought.

It is a somewhat rare thing to find in any of the writers of the present day that union of thought with fact which alone can guarantee to the children of their brain a healthy and permanent influence; therefore books are becoming more and more, like spoken things, ephemeral; and most authors appear to have no higher aim than to bring themselves prominently before "actors strutting on the same stage with themselves, all playing the same fantastic tricks, and all equally indifferent to the voice of the future, whether it be raised in praise, or blame, or not at all." Ephemeral

books crowd the shelves of all our book stores and libraries, obscuring for the present the written words that are destined to endure as intellectual monuments to shame posterity "with the boast that they are wiser than their sires," as the present is, in many respects, shamed by the past.

But not alone in books is this speculative tendency shown. It pervades the whole modern mind, and exerts a most hurtful influence on modern therapeutics. It is a very singular fact that, whilst in physiology it is uniformly admitted that no previous knowledge warrants the acceptance of a new physiological deduction until it is itself demonstrated by experiment, yet in therapeutics, which should properly be based on the result of pathological experiments, experience goes for nought unless it squares itself to accepted theories—accepted on assumed logical grounds alone, unsupported by any but the briefest experimental observation. The experience of all the past, recorded by wise men and careful observers, is cast into the opposite scale with a crude theory fresh from the brain of its inventor, weighed, and found wanting. In vain do the older members of the profession declare that they have seen such a good result, from such a plan of treatment, in any given case. If they cannot explain—they who have been rather experimenters than theorizers—the rationale of their treatment, and show *how* the effect claimed was produced, the fact that it *was* produced at all, is doomed, whilst their younger antagonists seem rather bent on showing how therapeutic effects *should* be produced, than in demonstrating it in disease.

Nor is it only among the young, and lesser lights of the intellectual world that this disposition is found. Some of the most able thinkers and careful observers of the day seem to have caught the infection, and are wasting giant strength in a vain contest with titanic forces. Thus Professor Huxley, certainly one of the master minds of the

day, endeavors to establish, on most insufficient data, a close relationship between the "lichen" covering a rock, and the "botanist observing it." One feature of their ultimate structure, a common "protoplasm," being, as he says, identical, one thing in common, and that but imperfectly understood, outweighing many differences of which we have a far clearer comprehension. Truly it seems the old story repeated of the lean kine eating up the fat, except that in this instance it is one eating up the many. The lean kine, be it understood, being represented by the meagre fact, and not by the great thinker. Pythagoras was certainly right concerning the motion of the earth about the sun, and yet it was just as certainly right not to accept his theory on the evidence furnished by him; and so Professor Huxley may be right, but his data are insufficient to warrant our acceptance of his doctrine. It is wedding

"Raw haste,
Half sister to delay."

No doctrine, however, emanating from a man of such unquestioned ability as Professor Huxley, should be hastily rejected, but should be held subject to future mental action, when the evidence advanced in its favor can be carefully and impartially considered by minds untrammelled by old habits of thought. "Raw haste," is now wiser in rejection than in acceptance.

DR. B. W. DUDLEY, for so many years the leading surgeon of the West, died in Lexington, Ky., on the 20th January, at an advanced age. Distinguished by great natural abilities, and an indomitable purpose, the name and fame of Dr. Dudley were familiar to the profession of the whole country.

MESSRS. ELLYSON & TAYLOR, Richmond, are the Virginia agents for this Journal.

WE have received from the "National Publishing Company, of Cincinnati," a circular to the effect that they have in press "the *best* popular treatise on the laws of health and disease ever published," accompanied by specimen pages of the same, and very kindly informing us that, "on receipt of a copy of our paper containing commendatory notice of the work, they will send, at their expense, a copy of the work as soon as issued."

For the great courtesy and consideration of the "National Publishing Company" we feel so deeply indebted, that we fear we cannot do them justice even by this special form of notice.

This Company merit our admiration for the novelty they suggest in writing reviews before the issue of a book from press—an admiration, only tinged with regret, that we have not yet become accustomed to the new style.

WE regret to announce the death of Geo. M. C. Roberts, M. D., L.L. D., Emeritus Professor of Obstetrics in the Washington University of Baltimore, and President of the Medico-Chirurgical Faculty of Maryland. Resolutions eulogistic of the deceased were passed by both these institutions, expressing the great loss they, as the entire community, have sustained.

"THE MEDICAL BULLETIN" comes out in new form, and strengthened in its editorial department. Under the efficient management of Professor Warren and Dr. Goolrick, and with prestige of the past year's success, we feel assured of its prosperous future.

FOR the kind greetings we have received from the press we return our warmest acknowledgments. Journals not receiving their exchanges regularly will confer a favor by notifying us of the fact.

UNIVERSITY OF MARYLAND—*Acceptance of Professor N. R. Smith's Resignation.*—At a meeting of the Faculty of Physic of the University of Maryland, held on Tuesday, the 25th ultimo, the following communication from Professor N. R. Smith was read and accepted:

To Professor Chisolm, M. D., Dean of the Faculty of Physic, University of Maryland:

My Dear Sir—Permit me, through you, to present my resignation from the chair which I hold in the University of Maryland, to take effect on the 1st of March, 1870.

Very truly, yours,

N. R. SMITH.

Baltimore, December 27, 1869.

[Reply of the Dean.]

UNIVERSITY OF MARYLAND,
BALTIMORE, January 27, 1870.

Professor N. R. Smith, M. D.:

Dear Sir—At a meeting of the Faculty of Physic of the University, held on the 25th instant, your letter of resignation was read and accepted, to take effect at the closing of the session, on the 1st of March, 1870. I have been instructed by the Faculty to express their sincere regrets at the loss of so valuable a colleague, and at the severance of ties with one who for so many years has added lustre to the University. The Faculty feel, that by your long and arduous services, the University is largely indebted for the high position which this medical school now holds among the best institutions of learning in America. This strong bond and long friendly intercourse has ripened into warm personal attachment, which renders the acceptance of your resignation peculiarly painful. In conveying to you these expressions of feeling from your former colleagues, allow me, personally, to express my sincere regrets at your withdrawal from the University, and with the assurances of high esteem, believe me,

Very truly, yours, &c.,

JULIAN J. CHISOLM, M. D.,
Dean of Medical Faculty,
University of Maryland.

BOOKS, PAMPHLETS, ETC., RECEIVED.

From the publisher, H. C. Lea, Philadelphia:

"A Manual of Clinical Medicine and Physical Diagnosis." By Thos. Hawkes Tanner, M. D., F. L. S., etc. Third American from second English edition. Revised by Tilbury Fox, M. D. London.

"Obstetric Aphorisms." By Joseph Griffiths Swayne, M. D., from the Fourth English edition. By Edward R. Hutchins, M. D.

For sale by James S. Waters & Son, Baltimore.

From the authors:

"Aiken; or, Climatic Cure." By Amory Coffin, M. D., and W. H. Geddings, M. D. Charleston, S. C.

"Physical and Medical Topography of Wheeling." By James E. Reeves, M. D., City Health Officer.

From Kelly, Piet & Co.:

"London Lancet," January 1st, 1870.

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ORIGINAL COMMUNICATIONS.

THE FORCES OF THE CIRCULATION.

BY H. R. NOEL, M. D.,
Professor of Physiology in the Baltimore College of Dental Surgery.

IN a previous paper we discussed the forces of organic life, and asserted their identity in the vegetable and animal kingdoms, and as they controlled the circulation in the former, we, reasoning from analogy, inferred they would control the circulations in the organic or vegetative processes of the latter; the conclusion arrived at was strengthened, if not verified, by comparative anatomy, comparative physiology and embryology. We now proceed to the discussion of

Proposition II. *Do microscopic observations and experiments on the arteries and veins demonstrate the absence of all other forces?* (*i. e.*, excepting the ventricular systole and arterial pressure, as asserted by Flint, p. 296).

The ventricular systole and arterial pressure are not sufficient to account for and explain the phenomena of the circulation, and moreover the observations and experiments of our best authorities are in opposition to such a theory, as we hope to conclusively prove before finishing this article.

Profs. Dalton and Flint, in their works upon physiology, give phenomena of the circulation which are utterly inexplicable, if we adopt their views, but which are readily explained by the views of Draper, Carpenter, Paget, &c. Dalton acknowledges (Human Physiology, p. 301) that the variations in the capillary circulation are inexplicable to him, and taking his theory of the circulation we are not surprised that such facts as the following should be rather puzzling than otherwise. (Idem p. 297).

"Another remarkable peculiarity of the capillary circulation is that it has *no definite direction.* The numerous streams of which it is composed do not tend to the right or to the left, nor toward any one particular point. On the contrary, they pass above and below each other, at right angles to each other's course, or even in opposite directions; so that the blood, while in the capillaries, merely circulates *promiscuously* among the tissues, in such a manner as to come intimately in contact with every part of their substance." This is true—absolutely true, but perfectly impossible if we have only one force, *i. e.*, the "vis-a-tergo;"—but it is easily understood and perfectly natural, if we have a "vis-a-fronte" resident in the tissues.

Flint, in his "Physiology," pp. 291 and 292, vol. I., after reciting some experiments of Dr. John Reid, upon the capillary circulation in asphyxia, and giving some of his own also, thus sums up the conclusions:

"These experiments, taken in connection with the observations on the influence of asphyxia upon arterial pressure conclusively show that nonaerated blood cannot circulate freely in the systemic capillaries."

Again on p. 343: "The experiments of Dalton and others have shown that in this condition (asphyxia), the obstruction to the circulation occurs *first* in the *systemic capillaries*, and the distension is propagated backward through the great vessels and left cavities of the heart, to the right side."

These two quotations rendered into plain English mean simply this, that the heart cannot force black blood through the capillaries. Now by black blood is meant blood rich in carbonic acid and poor in oxygen; but the tissues require a blood rich in oxygen and poor in carbonic acid, for they consume oxygen and exhale the acid, so there is a strong affinity for oxygen, but none for the carbonic acid; hence as soon as black blood begins to circulate in the system *i. e.*, capillaries, the affinity is lost, and repulsion begins, and with this repulsion the heart is unable to cope—the circulation stops, and stops first in the periphery.

Oxygen is the great vital stimulus—carbonic acid is an effete substance—an oxidised product—*an ash*—a result of histolytic action; the tissues demand oxygen, they resent the presence of carbonic acid, and while the heart sends out arterial blood the circulation is free and easy,—but when the heart sends carbonized blood the systemic circulation stops.

Surely here the "vis-a-tergo" is weaker than the "vis-a-fronte," for the tissues, while refusing the black blood passage through the peripheral vessels, angrily demand a better article, and the throbbing, convulsive action of the heart is the unavailing effort at compliance.

Marey, an eminent French physiologist, and shrewd experimenter, after a prolonged series of experiments upon the blood, pulse and circulation, makes the following statements.

"The frequency of the heart's action depends very much upon the state of the circulation in the vessels of the periphery."

"*The force of the pulse is not in relation with the energy of the ventricular systole, but that it is regulated by the state of the circulation in the ultimate ramifications of the vascular system.*" From the "Physiologie Medicale de la Circulation du Sang," Dr. E. J. Marey, Paris, 1863, p. 209 and 235.

These experiments by Marey were conducted with the utmost care, the sphygmograph being used for the purpose of testing the forces and phenomena of the circulation, and his statements are reliable. He says (p. 209): "The frequency of the pulse is in *inverse* proportion to the arterial tension" and "the arterial tension is determined by (dependent upon) the state of the capillary circulation;" that is, a high arterial tension means slow or impeded capillary circulation, full arteries with a diminished frequency in the heart's action; a low arterial tension means free circulation through the capillaries, arteries not full, and increased action of the heart.

Thus Marey teaches us that the frequency and the force of the heart's pulsation are determined by the capillary circulation; but this capillary circulation is itself determined by the "vis-a-fronte," *i. e.*, the nutritive changes in the tissues, or peripheral histogenesis; hence Marey also proves the fact, that "the heart is the slave of the periphery."

Dr. J. W. Draper, in his "Human Physiology" (edition 1865), warmly defends the theory of the "vis-a-fronte;" beginning at p. 143 and ending at p. 149, we find a most admirable and most scientific defense of his theory of the insufficiency of the heart's action.

Upon p. 147 we find the following: "By regarding the affinity between the blood and the tissues with which it is in contact as the great "*primary cause*" of the circulation, we assign a reason for those various phenomena which cannot be accounted for on Harvey's doctrine; the motions in the embryo; the periodic and local variations; the portal circulation; the changes in the current, as seen under the microscope; the movement in the capillaries after the heart is *cut out*; the empty condition of the arteries after death; the phenomena of acardiac fœtuses; local inflammations and congestions; the gangrene of parts while their capillaries are pervious; the retardation of the current on

the application of cold or carbonic acid gas; the results of asphyxia and death by drowning or hanging; the changes of pressure in the arteries and veins respectively during a check on the respiration; the "*vis-a-tergo*" of the veins; the effects of a ligature on those vessels; the action of irrespirable gases when breathed, and the opposite condition when oxygen gas or protoxide of nitrogen are used."

Carpenter, in his "Elements of Physiology" (edition 1851), endorses the views of Draper, which had then been but recently published, and upon pp. 336–338, gives an excellent explanation of the capillary circulation. Paragraph 600 contains this statement:

"We are now prepared, therefore, to understand the general principle, that the rapidity of the circulation of a part will depend in great measure upon the activity of the functional changes taking place in it;—the heart's action, and the state of the general circulation remaining the same."

"Any circumstance, then, which increases the functional energy of a part, or stimulates it to increased nutrition, will occasion an increase in the supply of blood, altogether irrespectively of any change in the *heart's action*. This principle has long been known, and has been expressed in the concise adage, "*Ubi stimulus ibi fluxus*," which those physiologists who maintain that the circulation is maintained and governed by the heart alone, cast into unmerited neglect."

We find the same ideas, nebulous, it is true, but sufficiently distinct to be thoroughly recognized and appreciated in that incomparable work, the "Cellular Pathology" of Rudolph Virchow, of Berlin; in fact they run as an undercurrent through the entire work.

In the Seventh American edition, p. 139, we find this idea:

"It is only when we conceive the absorption of nutritive matter to be a consequence of the activity (attraction) of

the elements of the tissue themselves, that we are able to comprehend how it is that the individual districts are not exposed every moment to inundation on the part of the blood, but the proffered material is, on the contrary, taken up into the parts only in accordance with the requirements of the moment." Again—p. 154: "And we are irresistably compelled, both by consideration of simply pathological, and particularly by that of pharmaco-dynamical phenomena, to admit that there are certain *affinities* existing between definite tissues and definite substances, which must be referred to peculiarities of chemical constitution, in virtue of which certain parts are enabled in a greater degree than others, to attract certain substances from the neighboring blood."

Also, p. 156:

"We shall hereafter have occasion to return to this subject, and my only object here was to lay this fact before you in its general features, and thus repel the ordinary conclusion, which is as convenient as it is fallacious, that hyperæmia (in itself passive) exercises a directly regulating influence upon the nutrition of tissues."

Again—p. 148: Virchow gives the observations of Schiff and Wharton Jones on the "rythmical action in arteries," (in the ears of rabbits and wings of bats,) and then states as his own observation, that this rythmical action *is not* synchronous with cardiac systole, or with the respiration. Here we find the affinities between blood and tissues asserted, and the statement that *nutrition* is *not* directly as the amount of blood in a part, but as is the activity of the *cells* or nuclear matter; and if arteries exhibit movements perfectly independent of the heart, we can only conclude that the nutritive and histolytic changes determine the circulation in any given tissue, by the demand for pabulum or oxygen, and the arteries often act in compliance before the heart is also called upon.

Paget and Bence Jones advocate this view. Mr. Paget in his "Surgical Pathology," Third American edition, p. 215, says: "One might imagine that the dilatation of vessels was due to an increased action of the heart, if it were not that (as I think) it is always greater at the very point to which the stimulus was applied than at any other part of the same wing, and is never at all imitated in the corresponding parts of the opposite wing."

Again, upon p. 219, Mr. Paget quotes the familiar experiment of Mr. Laurence, (*i. e.* opening veins in the arms of a patient with an inflamed hand, openings made in same way, and of the same size,) to show that through an inflamed hand thrice as much blood passes, as through one not inflamed. Here the surplus blood is a measure of the increased affinity of the inflamed tissues for oxygen and plasma, and strange to say, this affinity is *strong enough to treble the normal circulation* of blood in the arm.

In fact the whole of the thirteenth chapter on "The Phenomena of Inflammation" is imbued with this idea.

Dr. Bence Jones in his "Lectures on Pathology and Therapeutics," speaking of "Inflammatory Action," uses the following language (p. 183):

"The increased molecular motion in the cell of the cartilage produces increased chemical circulation of lymph—increased consumption of oxygen, increased liberation of heat and of oxidised products, and ultimately of water and carbonic acid. This action spreads from cell to cell until it reaches the capillaries." And upon p. 184: "The peroxidation which constitutes the first step of inflammation begins outside the capillaries, where the nominal heat is produced."

"When the increased action reaches the capillaries, the oxygen bearers (blood corpuscles, red) are by the demand for *oxygen* attracted in excess;" and of course we find, 1st, determination; 2d, congestion, with the gradually increased action of the nearer arteries, while the heart may or may

not be called upon; just as the inflammation happens to be small or large in *area*.

And again on p. 184:

"That the first mechanical congestions can be caused by increased chemical actions, and not by any nervous action affecting the heart or capillaries, is proved by the fact that when the circulation is arrested by a ligature in the frog, and irritating substances are *applied below the ligature*, the blood is seen *to be attracted to the irritated capillaries*, which will *remain congested after the circulation is re-established by removing the ligature*."

Now we think that the extracts from the works of Virchow, Paget and Bence Jones, do most certainly sustain the fact of "an affinity" between the blood and the tissues, and one of such power as to control the circulation in the capillaries. In the *constructive*, or *histogenetic* metamorphosis, the affinity is between the *plasma* and the *tissues*; in the destructive, or histolytic, it is between the oxygen and tissues. So, therefore, whether constructive or destructive changes are taking place, the "affinity" exists, and the quotation from Dr. Laurence is an "experimentum crucis" as to the controlling power of this "affinity."

In the third (revised) edition of "Aitkin's Practice," from p. 74 to 81 of vol. I., we find a series of quotations from able writers bearing upon this very question: Simon, Lister, Paget, Virchow, Alison, Bennett, Goodsir, Redfern and others endorse the views here advanced, so far as the primary changes in inflammation are concerned; but as "*inflammation is only one of the various shades of deviation from the normal process of nutrition*" (Aitkin, vol. I., p. 80), we can claim that the same general truth holds good for normal nutritive changes.

Observation by the microscope, both physiological and pathological, and experiments of our very best authorities, confirm the conclusions which we deduce from embryology, viz:

The heart is not the only force of the circulation; that the forces developed in histogenetic and histolytic metamorphosis determine not only the capillary circulation, but determine and measure the force and frequency of the ventricular systole.

"The heart is the slave of the periphery," and all pathology founded upon a contrary belief is false, and prejudicial to the science of medicine. There is, however, one source of error, and this should always be remembered and guarded against. It is this: Sudden and abnormal changes in the nerve-centres (of the vaso-motor system possibly) may simulate the changes of demands reflected from the periphery via these centres upon the heart, and we might have abnormal cardiac action from aberrant action of nerve centres, without any prior lesion of the periphery. This we believe to be rare, as like errors in the ganglia of vision and audition are so infrequent, that from analogy we would not think ganglionic aberration to be a very common source of trouble. In cases of functional lesions, we have for the last two years invariably conducted our diagnosis in reference to this fact, and generally in the following manner:

1. Interrogate the periphery for lesions of histogenesis or histolysis, and in this we include the blood itself.

2. An accurate examination of the nervous system, and an approximately accurate estimate of the condition of the ganglionic nutrition.

3. Lastly, the heart itself by auscultation, percussion, &c.

In nine cases out of ten we have found peripheral lesion as the primary one, this peripheral trouble dependent upon malaria, animal effluvia, rheumatic changes, chronic insufficiency of food, ditto of oxygen, &c., and our most successful results have been obtained by medication of the periphery, and with little or no reference to the heart.

OBSERVATIONS ON A CASE OF RIGHT HEMIPLEGIA, WITH "APHASIA."

BY FREDERIC GARRETSON, M. D., BALTIMORE, MD.

IF an acquaintance with the structure of the body is the essential foundation of medical knowledge, we can scarcely assign a less important place to the study of the functions of the several organs. To render this study complete, we observe the action of each organ in health, and as modified by disease; alone, and as associated more or less closely with other organs.

In attempting to explain the manner in which any organ performs its normal functions, the light of science illumines our path to a certain distance; but sooner or later we reach the veil behind which still lies the *ultima-ratio*—the *final cause*.

And probably in no case do we encounter this barrier so soon, as when we would explore the functions of the very organ whose varied powers we employ in the study of itself. The scalpel and the microscope have taught us much concerning the anatomical relations, and the minute structure of the several parts composing that complex mass of nerve-centres called the brain. To learn the functions of each of these parts, hecatombs of animals have been laid upon the altar of science; and patient observers have accumulated records of cases in man, where the experiment made by accident or disease might indicate the relation between the lesion and the attendant disturbance of function.

By the analogies drawn from vivisection, and the lesions revealed by autopsy in cases carefully studied during life, we have gained many steps in the intricate investigation of nervous physiology and pathology.

But there is a condition of impaired function which we can only study in the human subject, because it affects a

faculty peculiar to man—the faculty of articulate speech as an expression of ideas.

As an illustration of this pathological condition of a portion of the brain, I give a brief report of a case which I have studied with much interest.

J. M., aged 22, had suffered with intermittent fever during the spring of 1868, but soon recovered, and resumed his duties as clerk on a steamer plying between Baltimore and points on the Patuxent river. While dressing one morning, early in June, he fell insensible, without premonition; and when consciousness returned in about a half an hour, he was found to have lost the use of the right arm and leg, and to be unable to speak. The patient was brought to me September 1st, 1868, for faradisation. He could then walk with some difficulty by using a cane, but had no use of the arm or hand, on which the skin was cold and dry. I applied the current, with a view of improving the nutrition of the parts, not expecting any restoration of voluntary power. The arm soon regained its normal temperature, and the skin its secretory functions, while sensibility to the touch and to the faradaic current was partially restored, but no voluntary power was gained.

In this condition the patient left the city in November, 1868, and I lost sight of his case until January 12th, 1870, an interval of fourteen months, when he applied to me for general treatment.

The following observations have been made since that date:

I. *General Appearance and Condition.*—Has lost about 18 lbs. since first observed, and now weighs 118 lbs. Height, 5 feet 8¼ inches. Difference in measure of chest on inspiration and expiration, 3 inches. Action of heart, lungs, bowels and bladder, normal. Sleeps, eats and digests well at present, and has had no intercurrent disease. Defective nutrition shown in loss of weight, pallor, and an eczematous

eruption, which has for several months caused obstinate and painful sores on the scalp and *left* arm. Special senses all unimpaired.

II. *Motor Functions.*—Right arm still entirely useless; sensibility to faradaic current and to the touch, about the same as before (November 1868), and the fingers more firmly flexed, though still easily extended by another hand. Voluntary power in the right leg is so far restored that he walks without a cane; has slight difficulty in going up and down steps, or a hill, but only limps a little on level ground, and is not quickly fatigued.

III. *General Intelligence, &c.*—The expression of countenance, which was bright and even cheerful before, is now more depressed, but readily lights up when he is pleased or amused. Seldom speaks (to me) unless addressed, when he answers promptly, in monosyllables if possible; if many words are required, he uses the leading ones of the sentence —usually quite enough of them to convey his meaning. His enunciation, when not embarrassed, is qnite distinct; indeed I can discover no want of power or of co-ordination in the action of the voluntary muscles not involved in the hemiplegia.

I shall close my notes of this case, with the results of some experiments made with a view to determine the nature and degree of impairment of function in the brain and nerves.

1. Comprehension and retention of words, were tested by questions of some length, uttered with moderate rapidity, without gestures, and requiring some other answer than a negative or affirmative. A better test, was giving an order to be executed.

The result showed perfect understanding of any question or order given orally, not involving more than a dozen words; if that number is exceeded, he seems to lose the connection.

2. Comprehension and retention of written words were tested by selecting simple combinations of short words. It was found that he seldom used the wrong word, and if he did, always tried to correct the error, and usually succeeded. He could never be misled by having the wrong word suggested to him, and always recognized the right one as soon as spoken, even when unable to recall it himself. He read in this way, word by word, but on examining his power of combining them, it was evident that he derived no definite idea from a sentence composed of more than a dozen words.

He reads very slowly, and when required to read quickly a combination of three words, will transpose them, thus: for A, B, C, he reads A, C, B, without detecting his error. This is only an evidence of tardy mental action in associating the sound of the word with its visible representation. I have observed the same thing in children and in adult negroes, who were just learning to read, and I explain it thus:

The person first reads the three words mentally, and then reverts to the first in order to read them over aloud: *A* catches the eye, and is pronounced, but *C* was the last mental impression, and is pronounced before the sight of *B* suggests its sound, which therefore becomes the last of the series.

3. Memory of past events. This proved better than I expected, and having obtained from him a number of replies concerning places, people, and dates, he never contradicted himself in subsequent examinations.

4. Memory of words not suggested by visible objects. Among other tests, I find that he can keep punctually, without being reminded, an appointment to visit my office at any hour, made a week in advance.

5. Memory of the order or sequence of things habitually associated in a certain order, was tested by numerals and the alphabet. In September, 1868, he could scarcely count

six, without an error, nor could he go farther than five or six letters correctly, even with the book before him. In this respect there has been much improvement, as he can now count to 29, and repeat half the alphabet with the letters before him, or a dozen letters without the book.

6. Memory of the order of a series of objects, not directly associated with their names. This was tried by calling his attention to the order of a series of objects on a table, displacing, and requiring him to arrange them as before; he seldom succeeds with more than four objects. Finally, I observed that he never uses the name of one thing for another, and can play very well the games of cards learned before his attack.

As I do not propose to enter into an elaborate discussion of the condition illustrated by the case above reported, I shall conclude with a few remarks on the facts and theories of the leading observers and writers on the subject.

The word *Aphonia* having been appropriated to defects of articulation depending only on paresis of the muscles of the vocal organs, or local lesions of those parts, the terms *Alalia*, and *Aphemia*, were at first used to designate the condition now known as *Aphasia*. The latter term has received the sanction of Mr. Chrysaphis, from whose language all the names are taken.

An analysis of 17 cases recorded by Trousseau, in his Clinical Medicine, shows Aphasia *without* motor paralysis in 8 cases, and in 6 of these, the symptom was temporary, lasting from a few hours, to several months. In 9 cases there was more or less paralysis, affecting the *right* side, except in one case, which the author cites as the only one within his knowledge, of *Aphasia* with *left* hemiplegia. Of these 9 cases, 2 only were temporary, and in both the paresis was very slight, though persistent after speech was restored. Only 2 autopsies are recorded; in 1, *no* lesion of the third convolution of the left anterior lobe was found; in

the other, that part was involved, in common with other parts in its vicinity.

All observations tend to confirm the *fact* that *Aphasia* is almost invariably associated with lesion of the left anterior lobe, when any lesion is found; also, that *Aphasia* to any degree, may occur with or without motor paralysis, being *usually* permanent in the former, and temporary in the latter case.

Broca admitting the *fact*, attempted to account for the coincidence of *Aphasia* with *right* hemiplegia, by assuming a special nerve-centre for the faculty of speech, and locating that faculty in the third convolution of the frontal lobe, of the *left* side only. Such a theory would scarcely seem, on *a priori* grounds, consistent with our generally received views of the physiology of symmetrical organs, and being falsified by farther observations, it was finally rejected by the Biological Society in France.

A theory proposed by Mr. Moxon of Guy's Hospital, has also failed to receive general acceptance, though I am not aware that it is directly opposed by clinical or *post mortem* observations. He bases his explanation upon the supposition that in executing the complex movements required for articulation, as well as other complicated co-ordinate movements, the motor impulse is habitually derived primarily from one side—the other *reinforcing* as it were, rather than originating that impulse. He appeals to the preference given to the use of one hand, for instance, and the *automatic* manner in which the less "educated" member follows the motions of the one rendered more apt by habitual use. I think it would be interesting, in this connection, to know if M. Trousseau's exceptional case occurred in a "left-handed" patient. It is not within the scope of this paper to give a full exposition of Moxon's views, but in my opinion they merit a careful consideration, and may be found compatible with some facts which at first sight seem to oppose them.

But probably the true explanation of the various defects of speech included under the term *Aphasia*, is only to be found by regarding that condition as a part of a continuous series of symptoms, presenting at one extreme motor paralysis, with the so-called "faculty of speech" intact, and at the other, inability to form the *idea* which could originate the motor impulse for organs whose motor capacity is intact, but whose co-ordination of movement is lost.

Believing that every disorder of *function* depends upon structural change in some part of the apparatus concerned in the function—however slight or transient that change may be—I must ascribe every deviation from normal speech to its appropriate lesion.

The nature and seat of that lesion being subject to great variety, we may expect a corresponding variety and gradation in the symptoms by which we recognize its existence. A comparison of the relation between lesion and symptom leads us to look to the cerebral mass above and anterior to the *corpora striata*, as the source of the *idea*, and to the *corpus striatum* as the recipient of the impulse which is to result in the complex motor functions required for its expression in language.

According, therefore, as the lesion may be limited to one or the other of those parts, or may involve them both, I should expect to find every link of the chain of symptoms, from motor paralysis to mental imbecility, separate or combined.

In conclusion, I will observe that in lesions of the brain the greatest caution is required to render the results of an autopsy a safe foundation for a correct view of the physiology of its mysterious functions.

As a single illustration, I may refer to a case reported by Laycock, in which *left* hemiplegia existed for some time before death occurred from cardiac hypertrophy and mitral contraction. A clot was found in the *left* ventricle of the

brain, but careful examination showed obstruction of the *right* middle cerebral artery, and thus explained the apparent anomaly, which might not have been done by a less competent observer.

Many cases might be cited of deceptive appearances, due to *post mortem* changes, or indicating diseased conditions not likely to leave palpable lesions after death; but I do not feel it necessary to defend my position of extreme caution in accepting the observations of those who may not be *experts*, as a foundation for argument upon doubtful points in the physiology of the nervous system.

REPORT OF A CASE OF TRACHEOTOMY, WITH REMARKS.

BY I. DAVIS THOMSON, M. D.

THERE is a large class of diseases, in which the operation of tracheotomy is frequently performed, where I believe it to be entirely useless, if not absolutely harmful; I refer to those cases of blood poisoning which prominently affect the throat,—such as diphtheria, pseudo-membranous croup and malignant scarletina; for, I am convinced, that in these diseases, when the poison is sufficiently intense to cause a fatal amount of deposit in the air tubes, that the same poison is, in itself, sufficiently great to destroy life.

I believe, therefore, that it is worse than useless, in these cases, to subject the patient, at such a time, with his system already so far depressed, to the additional shock and further depression of an operation. It is the use of the knife, under such circumstances, that has brought much opprobrium and disrepute upon the operation under discussion.

I believe also that this injudicious use of the knife, and the just censure which such use has caused, frequently has its weight, in deterring the timid practitioner, from performing his duty in that class of cases, which I am about to men-

tion, where the operation is not only proper, but is absolutely necessary and where life might frequently be saved, by a prompt resort to tracheotomy.

I refer to that large class of cases in which the system at large is *not* primarily the cause of the throat trouble, but where the obstruction to breathing is of a purely local character, and arises from mere mechanical causes. In cases of spasmodic croup, of œdema of the glottis, of acute laryngitis, of immoveably fixed foreign substances in the glottis and the like, when less heroic measures have been vainly tried, *then* the operation of tracheotomy is most certainly and imperatively demanded, and, under such circumstances, my conscience would not be clear, were I to fail to open the wind-pipe.

I remember a case which occurred in my hospital practice whilst on duty at Lynchburg, Va., during the winter of 1863 (and which I reported at the time in the "Confederate States Medical Journal"), where I certainly saved the life of a patient (though I regret to say he died afterwards from neglect) by performing tracheotomy—or rather laryngotracheotomy—for I opened the windpipe by an incision extending from, and including, the cricoid cartilage and the two upper rings of the trachea.

The circumstances were briefly these: My quarters being conveniently near to the hospital, I was called about midnight to a ward not my own, where I found a soldier, whom I had not previously seen, but whom I learned had been in hospital about three weeks with chronic rheumatism.

Up to the hour of his going to bed—nine o'clock in the evening—he had been about the ward, and had not complained of any throat trouble. During the evening he had been imprudent enough to stand for some time at an open window.

Just before my having been sent for he had aroused one of the nurses, saying, in a scarcely audible whisper, that he could not get his breath.

I found him sitting úp in bed, gasping and breathing with the greatest difficulty; his face was livid, his eyes prominent and his pulse quick and hard; there was no external swelling nor tenderness on pressure. The patient's mouth was unusually small, his restlessness was extreme, and my hospital lamp afforded but poor facility for a satisfactory examination of the fauces. A little redness of those parts was all that could be discovered. I diagnosed the case to be one of acute laryngitis, with œdema of the glottis. The application of hot fomentations externally, and the administration of nauseants, gave him great relief, and in an hour I left him comparatively comfortable. Two hours later the nurse came in haste to say the patient had become suddenly worse and he thought was dead.

I hurried to the bedside and found life apparently extinct. His skin was cold, he had ceased to breathe, was pulseless, and there was no perceptible action even of the heart. He had the appearance of a man who had died of strangulation.

The only instrument at hand was an ordinary abscess lancet, and with this I quickly opened the windpipe, making my incision directly in the median line, and, as mentioned before, cutting through the cricoid cartilage and downward through the first two rings of the trachea; then, by inserting the handle of my lancet and turning it directly crosswise, the aperture was kept well opéned.

There was no rush of air, and the patient still showed not the slightest signs of life. Artificial respiration was then practiced, but for several minutes without avail, when presently, with a gasp and a slight shudder, the patient inhaled feebly through the artificial opening. A little mucus and blood were next expelled, and the functions of life were re-established.

In less than ten minutes the patient was perfectly conscious, and soon afterwards sat up in bed, and with a pencil

and slate expressed his great surprise at being—to use his own words—"alive once more."

In this case there was far less hemorrhage than, from the vascularity of the parts, might have been expected.

At daylight I procured one of Obre's admirably constructed trachea-tubes, which fit nicely into the opening, and was carefully fastened in place by strips of tape. I left the patient breathing comfortably through the tube and doing well. He was fed on fluids by means of a syringe and a gum catheter passed into the œsophagus.

The following day my patient was a little weak, but was up and about the ward as usual.

By the third day he was able to drink a cup of milk in the natural way, and the œdema of the glottis had so far subsided that he could inhale *some* air through the natural channel, but could not entirely dispense with the trachea tube.

I wish I did not have to add that during the following night, the nurse, whose duty it was to watch this patient, fell asleep, and when he awoke, some hours afterwards, my patient was a corpse.

The trachea tube had become displaced, and he had doubtless died because he was unable either to readjust the tube or to call for help.

A *post-mortem* examination (made the following day) proved the correctness of my diagnosis. There was no deposit of any kind in the air-tubes; the upper part of the larynx—including the glottis and the epiglottis—were swollen and œdematous, and the evidences of inflammation extended only so far downward as the point of my incision. I have claimed in this case a successful operation, because of the complete relief afforded my patient, and because he died of an accident which might and should have been avoided.

REFLEX AMAUROSIS.

BY JULIAN J. CHISOLM, M. D.,

Professor of Operative Surgery, and Clinical Professor of Eye and Ear Diseases in the University of Maryland.

NEARLY every variety of disease may be traced at times with certainty, to injury or irritation of remote nerves, which influence distant parts through reflex action. With examples of such we are all familiar, as when inflammations of the viscera, thoracic or abdominal, follow exposure of the surface; or what is even more common, when indigestion, gastric irritation, causes a sick headache. At times, under the influence of this reflex agency, we find some parts overcharged with blood, with resulting over-growth, or hypertrophy; or the opposite condition, atrophy, may show itself from defective nutrition. When irritation is excited through splanchnic nerves, the whole system of voluntary motion may be thrown into irregular contraction, as seen in the reflex phenomena of convulsions, which so often occur in children from indigestion, worms, or teething. Again, when distant nerves are mechanically injured, as in punctured wounds of the hand or foot, the very fatal complication of tetanic spasm—clearly a reflex disease—may more or less rapidly supervene. Why, after a similar injury, epileptic fits, or hysterical convulsions, or choreic movements, with sometimes incessant involuntary motion of certain muscles, paralysis agitans, should equally show themselves—all clearly examples of disease from reflex action—we cannot explain. Sometimes we can directly trace a paralysis of half the body to what we would call a very trivial source of nerve irritation; as when paraplegia is caused by urethral troubles, as from the irritation caused by the presence of a stricture; or with the severe pain of a facial neuralgia, (as in a case reported by Dr. Shearman, of neuralgia affecting the right inferior dental nerve,) paralysis of the right arm and leg should make its appearance. In both

of these instances the paralysis gradually disappeared, after the stricture had been removed in the one, and the pain subdued in the other.

The eye is an organ readily influenced by these reflex actions. With one patient it is a strabismus brought on by intestinal or some other remote irritation. In another it takes the form of a dilated pupil (mydriasis,) caused by a decayed tooth; or, as is perhaps much more commonly seen, dimness of vision resulting from nervous headache. Violent neuralgias of some one of the many branches of the fifth pair of nerves is not a very rare cause of temporary and partial blindness, from which, as a rule, the patient recovers as soon as the severe pain disappears; the amaurosis increasing with the intensity of the paroxysm, and diminishing as the pain lulls.

The following is an extreme case of amaurosis to absolute blindness, produced clearly from reflex influences, in which case sight rapidly and completely returned, when the neuralgia of the face was cured.

Mr. ———, aged 40, a married man, inclined to dissipation, consulted me March 23d, 1869, for tri-facial neuralgia. The seat of most intense suffering, which was paroxysmal in character, was in the deep parts in front of the ear, and apparently in the plane behind the eye ball, deep in the orbit. It was constantly similed to a red hot wire thrust through the right temple. The right eye ball, behind which the pain was located, was not at all painful to the touch, nor was strong light at any time annoying. During the paroxysms of pain sight became dull in the right eye, remaining perfect in the left. When the pain passed off sight returned. Many narcotics were used in large doses, but the greatest relief was obtained from the liberal use of chlorodyne, and by its means sleep could be secured. After some days of comfort the neuralgic pains came on with great severity on April 28th, and on this day sight was

rendered so defective in the right eye that letters an inch long could not be made out, the pain in paroxysms being more or less continuous, and of great severity. By May 10th he could only discern the outlines of large objects, and on the morning of May 15th the right eye had lost all perception of light; he not being aware when the strong light from the ophthalmoscopic mirror was thrown upon the right retina. There was no injection of the eye: permanent partial dilatation of the pupil existed—passive mydriasis. In a careful ophthalmoscopic examination the media were found perfectly normal, and so was also the optic disc with retinal vessels. No difference could be detected in the size of the retinal arteries or veins, nor in the color of the disc when compared with those of the left eye, in which good vision existed.

May 18th, under the influence of very large doses of bromide of potassium the patient slept well, and reports himself this morning free of all pain.

May 22d, no return of pain. Sight gradually returning to the right eye. To-day he can count fingers.

May 29th. To-day patient feels as well as he has ever done; pupil of right eye still somewhat dilated; with this eye can to-day read letters half an inch in length.

June 18th. Patient considers himself now perfectly well; with the right eye he can read the finest type, Brilliant of Jager's test type, which indicates a complete restoration of vision. On May 15th he could not distinguish light, and on June 18th—five weeks afterwards—he could read the finest print.

In this very interesting case the loss of vision was clearly due to reflex irritation from the fifth to the second pair of cranial nerves. The complete suspension of the function of the eye existed in this case without any change visible to ophthalmoscopic examination. The treatment was directed solely to the relief of the neuralgia, and not for the amaurosis which disappeared spontaneously.

SELECTED ARTICLES.

ON ATRESIA VAGINÆ.

CLINICAL RECORDS OF THE LONDON HOSPITAL, JANUARY 12, 1870.

BY T. SPENCER WELLS, F.R.C.S.

Surgeon to the Hospital.

Operation.—A young woman will be placed on the table directly; and as soon as she is under the influence of the vapor of bichloride of methylene which Dr. Tucker is administering, I propose to make an opening in the structure of the vagina in front of the rectum and behind the bladder, where there is no opening now, into a tumor which can be felt by a finger passed into the rectum, and which I believe to be the uterus greatly distended by menstrual fluid which cannot pass away owing to the vaginal atresia.

I use the term *atresia*, rather than *occlusion* or *obliteration*, because it more accurately expresses the actual condition in this and similar cases. Occlusion or obliteration of a canal almost implies that the canal was once open, but has been afterwards closed. In many cases this has actually occurred. But in others, so far as we can ascertain, the canal never has been open. There has been a *congenital* defect, an absence of opening.—*a* and στρηνις.

I only saw this young woman yesterday for the first time, at the request of my colleague, Dr. Day. He had at once detected what I believe we shall find to be the true state of the case; although three other medical men of considerable experience had considered the tumor felt by the rectum to be a fibroid tumor of the uterus, which by its pressure downwards had occluded the vagina. I am not surprised at this diagnosis, for the tumor felt by the rectum is extremely hard and nodular; yet I can detect an elastic yielding to pressure which, taken with the fact of the absence of vaginal canal, and the excessive suffering at the menstrual periods, leaves scarcely a doubt in my mind as to the accuracy of Dr. Day's diagnosis.

Now that the patient is well under the influence of the anæsthetic, and held in the lithotomy position, I pass a sound along the urethra into the bladder, and find the bladder pushed considerably higher and more forward than usual. With the index finger of my left hand in the rectum, I feel just beyond the sphincter a hard, round, irregular swelling depressing the anterior wall of the rectum, pushing it towards the sacrum and extending forwards towards the pubes. The labia and nymphæ are well formed. There is no hymen, but about an inch beyond the labia, the vagina—which at the orifice appears to be well formed—ends in a mass of dense unyielding tissue, so dense that the tumor distinctly felt by the rectum cannot be felt through this septum. Keeping my finger in the rectum, pressing my thumb against this septum, and holding this long narrow knife with its back towards the bladder, I very cautiously pass it through the closed end of the vagina into the swelling against which my finger in the rectum is pressing. The knife passes a full inch before resistance ceases, and now you see a little viscid, dark-red, treacly substance oozing down the blade of the knife. I am quite safe, therefore, in enlarging the opening by a notch on either side as I withdraw the knife; and now, on introducing this conical silver canula, you see the thickened menstrual blood passing away. It is so viscid and ropy that I draw it in long cords, like glue, from the open end of the canula; and now that several ounces have come away—and pressure on the abdomen above the pubes helps it away more rapidly—I inject warm water, to which a little iodine has been added, until the whole of the dark fluid is washed away and the iodine solution returns nearly pure. On withdrawing the canula and passing my finger to make a little more dilatation, I feel what I believe to be the dilated uterine cavity; but there is no distinct cervix to be made out. The hard mass through which the finger passes is probably the upper portion of the vagina contracted and blended in one indistinguishable mass with the cervix uteri.

I shall not insert any dilator, or tent, or drainage tube to-day; but the iodine injections will be repeated at intervals of six or eight hours; and, on any sign of the opening closing, either a laminaria tent or a silver canula will be made use of.

These are not very common cases, and it is curious that I had to do an operation almost precisely similar to this last week on a

young woman now in the hospital, and for the third or fourth time. She was sent to me by Sir Henry Thompson some two years ago, and I did what I have done to-day, evacuating some twenty ounces of fluid. For five months she remained quite well, and menstruated regularly; then the vagina closed again, and after three months I had to repeat the treatment. I followed it up by tents, but they caused a good deal of pain. After four months' regular menstruation, we had another closure. So this time I have kept the vagina open by a silver canula, made with flanges, which open and keep it in position. None of the operations on this patient have been followed by any febrile symptoms or much pain. We have kept her two or three days in bed as a matter of precaution, and have used the iodine injections; but she has always been able to return home almost immediately. Even now nothing like a normal uterus can be felt by the rectum, and on passing the finger along the open vagina it enters an irregular ill-defined cavity, which offers no distinct resemblance to the canal of the cervix or the uterine cavity. Probably the uterus had been so long distended before the vagina was first opened that it has never properly contracted, or there may be some congenital malformation of the uterus contemporary with the vaginal atresia.

In these two cases the closure of the vagina is higher up, more complete, and accompanied by a more abnormal condition of the uterus than in the class of cases most commonly met with in our out-patient rooms and in private practice. The commonest case of all is a mere adhesion of one labium to the other—the labia majora or minora, or both. Sometimes this is noticed in an infant soon after birth—often not until the child is two or three, or eight or ten years old, and then a nurse or mother washing the child observes the defect. Nothing can be simpler than the treatment. By firm pressure with the thumb on either side the labia are squeezed outwards—torn apart—and a connecting filamentous medium is seen to separate, with little pain to the patent, and with scarcely a drop of blood. A great service is rendered to the girl, and the mother is relieved of great anxiety. I once saw this condition after puberty leading to retention of the menses, and on separating the adhering libia a well-formed crescentic hymen was seen, over which the menstrual fluid freely escaped. I fancy that many of the so-called cases of *imperforate hymen* are such

cases of *atresia vulvæ* as I have just noticed. In early infancy or childhood vaginitis or infantile leucorrhœa is easily set up by inattention to cleanliness. The mucous membrane is blistered, and the apposed raw surfaces unite, just as they occasionally unite after labor, and have to be separated before sexual intercourse can be resumed. But we do occasionally, though rarely, see true cases of an imperforate hymeneal membrane. The membrane completely closes the orifice of the vagina, and prevents the escape of the menstrual fluid, which, retained behind, dilates the vagina, the uterine cavity, and the Fallopian tubes, possibly leading to fatal rupture, peritonitis, or hæmatocele. Sometimes, on separating the labia, the distended hymen appears as a red, tense, fluctuating cyst. But, if I may judge from my own experience, as well as from the literature of the subject, a true imperforate hymen is much less common than either a vulvar or a vaginal atresia, though more common than a true congenital absence of vagina—a very rare malformation, in which the rectum and bladder are only separated by their own walls, an instance of which may now be seen in a woman in this hospital in Dr. Routh's ward. In this case the urethra is so widely open that it may easily be mistaken for the vagina; and it reminds me of a lady whom I saw some years ago with Dr. Farre, who had been married several years, but whose vagina was almost closed by a dense hymeneal membrane; and it was quite certain that marital intercourse had always taken place by the dilated urethra. We afterwards found that in this lady the vagina and uterus were both perfectly formed. About the same time I saw a young married lady with Dr. Farre to whose parents a written opinion of considerable authority had been given against her marriage on the ground of malformation. As she was engaged to be married, Dr. Farre was consulted. He differed from the opinion which had been given, and, knowing that I was interested in such cases, kindly asked me to see the patient with him. When she was under the influence of chloroform, I made a careful dissection (after a short incision along the raphe of the perineum) in front of the anus, working with a probe and a blunt silver knife, and separating the bladder and rectum from each other for some little distance until we came into a perfectly well-formed vagina and felt a normal uterus. I scarcely remember an instance in which such complete relief to a very distressing family trouble was so readily

afforded. The patient married, and has had two children since In another case, where a marriage was stopped by an occluded vagina, I believed the cause of the occlusion to be a fatty tumor which had formed in the right recto-ischiatic space, and I removed this tumor. It weighed nearly a pound. But the removal did no good further than to admit of a more complete examination, which led to the discovery that there was congenital absence of the uterus. I obtained Dr. Farre's valuable opinion in this case, and we both certified that there was no uterus, and that marriage ought not to be permitted.

Dr. Farre kindly assisted me in the diagnosis of another case which had puzzled me excessively. Dr. Irvine, of Stanmore, brought a young woman to me with a large abdominal tumor; and on making a vaginal examination (as I thought) I could feel no uterus. I then found that my finger had passed quite easily along the uretha into the bladder, and that the vagina appeared to be absent. At least a finger in the rectum and another in the bladder appeared to be separated only by thin layers of membrane. Yet menstruation was said to be quite regular and free from pain. At first I thought that the menstrual fluid must come away through the bladder; but on examination during mensturation we found a minute aperture behind the urethra just in front of the anus, from whence the fluid exuded. Taking this as a guide, I made a very cautious dissection until I came into a well-formed vagina, and felt a normal cervix uteri, which could not be felt through the rectum, as it was concealed by a large fibroid tumor, which grew from the right side and posterior part of the fundus uteri. I mention these cases merely as illustrations of different forms of atresia of the vagina. In works on congenital malformations of the female genital organs, you may find other varieties described.

In conclusion, I will just say a word as to the treatment of the menstrual retention which is dependent on any of the forms of atresia of the vagina. I suppose no one can doubt that a passage for the retained fluid ought to be made, and, if possible, so kept open that subsequent retention cannot occur. We know that this cannot be done without some risk. In some cases acute pelvi-peritonitis, or pelvic cellulitis, or uterine phlebitis, with high fever, pain, and vomiting, have followed opening of the canal and evacuation of the fluid, and have ended in death. But there a.e numerous

cases on record where death has occurred after a similar train of symptoms before any operation had been performed. The fluid secreted and retained distends the uterine cavity and the canals of the Fallopian tubes, and escapes into the peritoneal cavity, either by rupture of one of the tubes or through the open end of the canal, or in some more indirect way it leads to a peri-uterine hæmatocele or a pelvic abscess; a Graafian vesicle maturates and bursts, it is not grasped by the fimbriæ of the tube, and blood is effused into the cellular tissues between the ovary and the uterus; or there is general congestion of the venous plexuses in the neighborhood of the uterus, and one of the veins gives way. To some such danger as this any woman is daily and hourly exposed, in whom a mechanical obstruction interferes with the escape of the menstrual fluid, and I think we ought to remove the obstruction as soon as possible.

It has been supposed by some that puncture by the rectum might be safer than opening the closed vagina—that the entrance of air and consequent putrefactive changes in the fluid not completely evacuated would be prevented by the closure of the sphincter ani; and several successful cases have been recorded where this practice has been adopted. I have before now expressed my opposition to this view. I cannot see that the intestinal gases which would enter from the rectum into the emptied cavity can be less injurious than atmospheric air. Of the two I should prefer the air without the fæcal gas. And then the patient is left with a closed vagina—she is simply relieved for a time from the consequences of menstrual retention. Whereas if you open the closed vagina you afford the same immediate relief, and render an additional service which may be a permanent relief. By a little care the opened canal may be kept open; and, if it should close through want of care, it may be reopened. It cannot be done without some risk, but the risk of leaving the patient alone is vastly greater.—*London Medical Times and Gazette.*

THE CHIEF CAUSES OF HOARSENESS AND APHONIA, WITH HINTS ON TREATMENT.

BY GEORGE JOHNSON, M. D., F. R. C. P.,
Professor of Medicine in King's College; Physician to King's College Hospital.

THE causes of hoarseness and aphonia are numerous and diverse, but they all resolve themselves into some condition which prevents or impedes the free vibration of the vocal cords. There are five chief modes in which the vibration of the vocal cords may be interfered with. 1st. A tumor upon one or both vocal cords, or between them, may prevent their close apposition. 2. A tumor or swelling above the cords may press upon them and so damp their vibrations. 3. There may be inaction of the laryngeal muscles and a consequent want of due tension and approximation of the cords. 4. The arytænoid cartilages, the levers to which the vocal cords are attached and by which they are moved, may be destroyed. 5. A scanty and feeble respiratory stream of air may be the cause of hoarseness or aphonia.

A not uncommon cause of hoarseness is a warty growth on one or both vocal cords. Such a growth coming between the two cords prevents their close apposition in vocalising, and the voice is thus rendered more or less feeble and husky. In the 51st volume of the "Medico-Chirurgical Transactions" I have recorded seven cases in which such growths were removed by the wire ecraseur.

An unequal thickening and a granular unevenness of one or both cords may interfere with the voice as much as a distinct growth from the surface of a vocal cord. This roughening of the surface of the true cords is a not uncommon result of strumous inflammation in phthisical subjects. The inter-arytænoid fold of mucous membrane is sometimes so much thickened and indurated by catarrhal or strumous inflammation as to prevent the approximation of the arytænoid cartilages. Thus the closure of the glottis is prevented, and the voice is enfeebled.

In one case the cicatrix of a syphilitic ulcer in the inter-arytænoid fold prevented the close apposition of the cords, and rendered the voice husky; it also prevented the free movement of the arytænoid cartilages and the opening of the glottis during inspiration. Thus the breath was drawn in with a loud noise—inspiration was stridulous.

Syphilitic ulceration sometimes cuts across one of the true cords, and thus makes a large gap in the glottis. This had happened to the right vocal cord of a gentleman whose voice had been reduced to a whisper by syphilitic ulceration within the larynx many years ago.

One of the most frequent causes of hoarseness and feebleness of voice is what occurs often in cases of catarrhal sore throat—I mean inflammatory congestion and swelling of the so-called false cords; that is, the fold of mucous membrane on either side immediately above the ventricle of the larynx. The swollen mucous membrane encroaches upon that little cavity—the ventricle—which in the normal state permits the upward vibration of the true cord; but now the vibrations are damped and impeded by the contact of the swollen mucous membrane.

A chronic catarrhal swelling of the mucous membrane of the larynx is the anatomical condition which exists in many cases of so-called "dysphonia clericorum."

The voice may be rendered very feeble and husky by diphtheritic exudation within the larynx. The false membrane comes in contact with, and sometimes even covers, the cords, and thus prevents or impedes their vibrations.

In like manner a transient aphonia may result from a piece of viscid mucus within the larynx. A forced expiration or a cough expels the mucus and restores the voice.

Hoarseness or complete aphonia may be a consequence of paralysis of the muscles or the larynx, and this paralysis or weakening of the laryngeal muscles may result from various causes. It is one of the symptoms and results of that rare and fatal disease which Trousseau has described under the name of glosso-laryngeal paralysis. The laryngeal muscles may be paralysed by pressure on the recurrent nerve by a cancerous tumor or by an aneurism of the aorta. In 1863 a man (F. F.) was under my care in the hospital with signs of extensive cancerous disease within the chest. His voice was reduced to a whisper, and, on inspection by the laryngoscope, I saw that his glottis was open to the extent of about one-eighth of an inch. The arytænoid cartilages were in contact with each other at their tips. There was no movement of the cartilages, and the glottis neither opened wide in inspiration, nor closed completely when the patient attempted to vocalise. The inference was

that both pneumogastric nerves, and especially the recurrent branches, were implicated in the cancerous growth within the chest, and thus the laryngeal muscles were paralysed. He left the hospital before his death, and the body was not examined.

In the same year (1863) another man, J. H., was admitted with symptoms of laryngitis, cough, dyspnœa, stridulous breathing, and hoarseness. Laryngoscopic examination showed a healthy larynx, with free movement of the glottis at the time of the examination. It was inferred that pressure upon the recurrent nerve excited occasional spasm of the glottis. There were no physical signs of aneurism, but there was one very suspicious symptom. For some days before his admission there had been difficulty in swallowing solids. Four days after he came in he began to vomit blood, and he quickly died. An aneurism of the arch of the aorta, about the size of an orange, had opened into the œsophagus, and the stomach was full of blood. The left pneumogastric nerve passed in front of the tumour, and was somewhat flattened by pressure. The recurrent passed behind the aneurism in its course upwards to the larynx. The parts implicated in this disease are preserved in our museum.

In some of these cases in which a tumor presses upon the nerves supplying the larynx, there is probably a combination or an alternation of palsy and spasm of the laryngeal muscles—spasm in the early stage, when the pressure is less; palsy later, when the pressure is greater, and the nerve thereby disorganised.

In the case which I just now mentioned the nerves on both sides were implicated. There was, in consequence, bilateral palsy of the laryngeal muscles, and both arytænoid cartilages were motionless. When a tumor implicates only one pneumogastic or recurrent nerve, there may be unilateral palsy of the larynx, as shown by the fact that, during attempts at vocalisation, one arytænoid cartilage remains motionless, while the other moves, with its attached vocal cord, in the usual manner. This unilateral palsy on the right side existed in the case of a gentleman whom I lately saw with my friend and former pupil, Mr. Miles A. Wood, jun., of Ledbury. The cause of this one-sided laryngeal palsy, with consequent hoarseness and occasional dyspnœa, was found to be a cancerous tumor at the root of the neck, involving in its substance the right pneumogastic nerve. The tumor pressed upon the œsophagus, causing difficulty of swallowing, and ultimately it made its way into the œsophagus by ulcera-

tion, and the patient died from exhaustion. Mr. Wood was early led to an exact diagnosis by observing the unilateral palsy of the larynx, and the fact that the œsophagus towards the root of the neck was so narrowed that a moderate-sized bougie was arrested there.

There are cases of purely nervous or functional, or, as they are sometimes called, hysterical aphonia. The voice may be reduced to a whisper, and even that is sometimes inaudible. On looking into the larynx, we see no evidence of structural change, but when the patient attempts to vocalize we find that the vocal cords remain motionless, or that they move very little. This nervous aphonia often comes on suddenly, and it often passes away as suddenly as it came. The best treatment for it consists in the application of electricity directly to the larynx by means of Dr. Morell Mackenzie's "laryngeal galvaniser." The shock excites spasm and a scream, and the cure is sometimes very rapid. I have cured several of these at a single sitting, and one by a single shock of electricity. A boy, about 12 years of age, was much frightened, and nearly drowned, by falling into a pond. From that time he completely lost his voice, his intellect being unimpaired. When I saw him he had not uttered an audible sound for two years. I saw that his larynx was healthy, and I determined to apply electricity. The first shock elicited a loud scream, and at once he recovered his speech.

In most cases it is necessary to apply the electricity again and again before the cure is complete, and in some cases the treatment is unsuccessful, but these are comparatively rare. When the general health is impaired, treatment should be directed to remedy this while the electricity is being employed.

It is remarkable, but quite intelligible, that when, from any cause—a growth upon one of the vocal cords, or inaction of the muscles—the glotis remains partly open during vocalization, the air escapes so rapidly during the expiratory act of speaking, that the patient is often compelled to draw in a fresh breath before he comes to the end of a sentence. In consequence of the patulous state of the glottis, there is a rapid escape and waste of air, and the chest is soon emptied.

There is a form of aphonia or weakness of voice which I look upon as the result of muscular fatigue and weakness. I have seen a considerable number of these cases, and most of the patients have been clergymen. The patient begins to speak in a clear and

loud voice, and he continues to do so for a variable time; but after speaking or reading aloud for, it may be, a quarter or half an hour, the voice becomes feeble, and it may soon be reduced to a whisper. At the same time there is a feeling of fatigue, and sometimes positive pain in the throat. With these symptoms we may find, on looking into the larynx, no trace of structural change, or only slight congestion and redness without swelling. A common cause of this form of dyspepsia is over-work of the larynx, from frequent preaching and reading in large churches. I have known it to result from over-exercise of the voice in singing, from straining the voice by a habit of loud talking in the midst of noisy machinery, and from violent efforts in giving the word of command.

In some instances this peculiar form of laryngeal weakness has followed upon an inflammatory attack. It seems probable that inflammation may sometimes extend from the mucous membrane to the muscular structures beneath, and thus the nutrition and the tone of the muscles be impaired. This is the more likely to happen if the larynx be much exercised in speaking or singing during an attack of catarrhal imflammation.

The best treatment for these cases consists in rest for the larynx as the organ of speech, change of air and scene, and a general tonic regimen. The daily application to the larynx of a saturated solution of tannin in glycerine often does good. Tannin lozenges, too, may help to give tone to the feeble voice, and the combination of iron with small doses of strychnine is sometimes useful. I have tried galvanism, but I have hitherto seen no benefit from its use in this class of cases.

Destruction of the arytænoid cartilages is a rare cause of aphonia. Some time since a case of this kind occurred in the Hospital. A man was admitted under the care of Dr. Beale with aphonia, stridulous breathing, and urgent dyspnœa. I saw the vocal cords touching each other, and motionless. Mr. Wood opened the trachea, but the man died. On opening the larynx an ulcerated orifice was found in the mucous membrane over each arytænoid cartilage. A small calcareous mass alone was found in the position of each cartilage. It is evident that the cartilages had become ossified and necrosed, and had then been discharged through the

mucous membrane. The glottis passively closed, because the levers which move the cords were destroyed and gone.

There is yet one cause of aphonia or weakness of voice which requires mention in order to complete the sketch which I have here given. The larynx is a wind instrument, and for the perfection of its performance it is required not only that there be complete structural and functional integrity of its cartilaginous, membranous, muscular, and nervous apparatus, but the bellows must be in working order. There must be a free movement of the ribs and diaphragm, and there must be an unimpeded entrance and exit of air through the trachea and bronchi. When progressive muscular atrophy invades the intercostal and other respiratory muscles, the voice is weakened in proportion to the diminution of muscular power and of chest movement. When, from any cause, the vital capacity of the chest—in other words, the volume and force of the tidal current of air—is either temporarily or permanently diminished, the voice, as a direct consequence, and in a corresponding degree, is enfeebled. Thus, during a fit of spasmodic asthma, so scanty and feeble is the respiratory current of air, that the voice is annihilated, or reduced to the faintest whisper. In cases of advanced emphysema of the lung the voice loses tone and strength in proportion to the diminution of the respiratory power. One of the most curious examples of this form of aphonia is the husky whispering voice which occurs during the collapse of cholera. Here the primary cause is the partial arrest of the circulation through the lungs. The mass of blood is stopped by the contraction of the minute pulmonary arteries, and, as but little venous blood reaches the pulmonary capillaries, there is but little demand for air to meet and decarbonise it. The respiration, therefore, becomes feeble and shallow, and, to borrow the famous expression of Sir Thomas Watson, "the vocal pipe feebly blown through, refuses to speak."

Aphonia, be it remembered, is quite distinct from aphasia. Aphonia is the result of a structural or a functional defect in the larynx, or a deficiency in the volume and force of the respiratory stream of air. Aphasia, on the other hand, is the consequence of a break, somewhere high up, in that chain of nervous communication through which the mind is enabled to play upon the vocal instrument.—*London Medical Times and Gazette.*

ON THE LOCATION IN THE SPINAL CORD OF A SPECIAL SET OF MOTOR NERVES DISTINCT FROM THE VOLUNTARY MOTOR.

BY C. E. BROWN-SEQUARD, M. D., F. R. S., &c.

IN the appendix to my work on the Central Nervous System,* I have already pointed out the existence, in the base of the brain, of a large number of nerve-fibres having a great share in the production of convulsive movements, either as reflecto-motor or otherwise, and quite distinct from the voluntary motor nerves. I have lately made experiments which show conclusively that in the spinal cord there are motor (reflecto-motor) nerve-fibres occupying a distinct place, so that they may be paralysed while the voluntary motor nerve-fibres are not. The following facts leave no doubt on this point:

1. If I divide the posterior column and almost the whole of the lateral column of the spinal cord, with the posterior and central parts of the grey matter, in the dorsal region, in a guinea-pig, I find, when the animal has become epileptic, that the irritation of the part of the face and neck which I have called *epileptogenous*, determines reflex convulsive movements everywhere, except in the posterior limb on the side of the injury. This lack of reflex movements is not due to a paralysis of the nerves serving to voluntary movements, as, if that limb is at first a little paralysed after the operation, it soon recovers power, and has no trace of weakness by the time epileptic fits can be provoked.

2. If only the posterior column and a very slight part of the grey matter, with a still slighter part of the lateral column of the spinal cord, is divided in a guinea-pig, in the dorsal region, the four limbs are attacked with reflected convulsive movements when the *epileptogenous* zone is irritated. In this case the encephalon communicates with the posterior limb on the side of the injury for both voluntary and reflected convulsive movements.

3. If, in another animal, the lesions mentioned in the preceding experiments have been made, at the same level of the cord, one on the right side, the other on the left side, I find that the two sides of the face and neck acquire the epileptogenous power, and that fits can, therefore, be produced by the irritation of either side;

* "Course of Lectures on the Physiology and Pathology of the Central Nervous System," p. 241. 1860.

but whether the right or the left side be irritated, there are reflected convulsive movements only in three limbs; the posterior one, on the side where the lateral column of the cord is divided, remaining without the least convulsion, while the three other limbs are violently convulsed. Both lower limbs, however, remain endowed with strong voluntary movements.

4. In animals having had a complete section of a lateral half of the spinal cord, at the level of the tenth dorsal vertebra, and having become epileptic, I have ascertained that the voluntary movements, after a period of very great diminution in the posterior limb on the side of the lesion, return gradually almost to the normal condition, in a variable number of months. In many guinea-pigs, having recovered voluntary movements even for a year or eighteen months, I have never seen but very slight convulsions in the posterior limb on the side of the injury. Reunion of nerve-fibres serving to voluntary motor fibres can, therefore, take place to a very great extent in the spinal cord, after having been divided; but there is hardly any reunion for the nerve-fibres which, in attacks of epilepsy, give rise to reflected convulsive movements.

These facts, and others which I do not think it necessary to publish, seem to prove conclusively—

1. That nerve-fibres employed in making muscles contract, in fits of epilepsy, are quite distinct from voluntary motor nerve-fibres.

2. That these two sets of motor nerve-fibres do not occupy the same place in the spinal cord, the voluntary motor being more in the anterior (grey and white) parts of that organ, the others being chiefly in the lateral column.†—*Lancet.*

Paris, Dec. 1869.

ALCOHOLIC STIMULANTS IN DISEASE.

AFTER a great many fluctuations, professional opinion upon the question of alcoholic stimulation in disease appears to have recently achieved some real progress towards the establishment of satisfactory principles. There are still very wide divergences between different authorities, and we fear that there is still a good deal of

† This is in harmony with the facts well proved by my very able friend, Dr. Charet, that inflammation (sclerosis) of the lateral column of the spinal cord is invariably accompanied by strong muscular spasms.

extreme and irrational practice, both in the direction of excessive stimulation and of the opposite fault of an unreasonable fear of the remedy. But it seems to us that the outlines of a greatly improved knowledge, both of the therapeutic powers and the capacity for mischief which alcohol possesses, may now be discerned.

In the first place, as regards *acute* diseases attended with febrile phenomena, three things are tolerably plain. The first is, that alcohol, when it acts well, acts as an antiphlogistic stimulant; that is to say, it lowers abnormally high temperature, it reduces the frequency of the pulse, and, while raising nervous power, it calms those disturbances of the nervous system which attend, if they are not caused by, the elevated temperature of the blood in pyrexia. The second great fact is, that there are the utmost differences between different pyrexial patients as to their capacity for receiving benefit in this way; that a large number of persons, especially among the young and the previously robust, do best without any alcohol; and that, among those to whom it is beneficial, there are some for whom three ounces of wine per diem is fully the physiological and therapeutical equivalent of twenty-four ounces given to another and smaller class of patients; and that nothing but careful tentative use of the remedy can tell, in any particular case, whether it is needed, and, if so, in what quantities. In short, that all generalizations to the effect that you must, or must not, give wine by ounces or by bottles, in fevers or in inflammations generally, are worthless and misleading. The third settled fact is this, that it is often in those cases where alcohol used (on purely theoretical grounds) to be thought most dangerous—viz: in cases with very high temperature and flushed face—that it produces its best effects; and that to pour large quantities of stimulants into a fever patient simply because he is pale and has a small pulse, is an unwarrantable proceeding. The above are *certainties*, and the following are *probabilities:* It is probable that alcohol owes part of its influence in fevers to an antiseptic agency, by which it destroys the activity of certain bodies—call them organisms or not as you please—by means of which the *contagium* sets up the febrile disturbance within the blood. In the case of inflammation, it is probable that alcohol, when it acts well, does so in part because it stimulates the sympathetic and contracts the arterioles, and in part interferes with the migration of blood corpuscles through the vascular walls, as Binz

and his pupils have shown that quinine can also do. It is probable that so far as alcohol can be applied to those purposes within the organism, it is of unmixed benefit. And there is much reason to believe that the singular differences between different individuals, as to the quantity of alcohol they can bear, depend on some unexplained difference in the respective rapidity with which alcohol is oxidised in the blood in different persons. For it is now known with certainty, on the one hand, that nearly the whole, even of a poisonous dose, is always oxidised in the body, and on the other hand, that the presence of large quantities of unchanged alcohol for any length of time in the blood inevitably poisons the nervous system. The antiseptic action, and the influence on the migrative tendency of the corpuscles, are most likely produced immediately that the alcohol mingles with the blood; it probably depends on the subsequent progress of oxidation whether the *general* effect on the patient will be good or bad. One thing is certain: if signs of narcotism—*i. e.*, paralysis of the nervous system—are produced, the alcohol is doing harm, and must be immediately diminished or stopped.

As regards *chronic* diseases, we are sorry to observe that there is very much less of intelligent progress in medical opinion than in the case of acute diseases. It is much to be regretted that a large number, even of highly-educated practitioners, will persist in acting on the assumption that in non-febrile diseases the amount of alcohol to be administered ought to be measured by the degree of debility, merely as such. The direct and very mischievious corollary of this is the practice, unfortunately daily increasing, of prescribing stimulants with lavish profusion in those numerous *nervous* affections to which weakly persons (more especially women) are prone. It is our duty, as medical journalists, to raise our voice to the utmost against this tendency. We are no bigots against alcohol; and we are heartily sick of the unthinking abuse which has been lavished on what it is the fashion to call "indiscriminate stimulation in acute disease." We declare our belief that the real mischief lies at the door of those who are indiscriminate (because they are unthinking, illogical) in their prescription of alcohol for *debility, merely as such.* It is no figure of speech, but the literal truth, when we say that hundreds of neuralgic, hysteric, and epileptic patients have been driven into drunkenness or lunacy, or both, by the careless folly of

advisers, who had no better reason for the prescription of large doses of alcohol than the fact that these diseases are attended with nervous weakness, as they undoubtedly are. The assumption involved—that so much ingested alcohol is necessarily so much added nervous strength—is so gross a fallacy that no one would assent to it if expressed in plain words. Yet we constantly see it acted upon. We repeat, with all the energy of which we are capable, that it is a grave scandal and mischief that medical men should endanger in this serious way the powers of moral resistance of women and other weak persons while basing their practice upon ideas that are illogical and untenable; and we trust that a reform in this respect will immediately be commenced.—*London Lancet.*

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

THE CELL DOCTRINE: ITS HISTORY AND PRESENT STATE. FOR THE USE OF STUDENTS IN MEDICINE AND DENTISTRY. ALSO, A COPIOUS BIBLIOGRAPHY OF THE SUBJECT. By James Tyson, M. D., Lecturer on Microscopy in the University of Pennsylvania, and on Physiology in the Pennsylvania College of Dental Surgery, etc.

THE author of this interesting work informs us that its object is, "to collect in a convenient form for study and reference, the views of different writers upon the subject of Cell Structure and Growth," and "to give a continuous history of the evolution of the 'cell doctrine' up to its present state, without embarrassing his pages with a large number of isolated facts." The book, consequently, will be found to present nothing that is new, except as to arrangement of material, in the accomplishment of which, however, the author has shown both industry and good taste.

In the present state of Histology, when it is assuming so important a place in modifying our views of pathological conditions, no greater service could be rendered the student than that of placing conveniently before him the views of such men as Virchow, Beale and Huxley.

Our author begins with the earliest writings upon the subject, and gives brief summaries of the views of Wolf, Milne Edwards, Schleiden and Schwann, Henle, Goodsir, Bennett, Virchow, Max Schultze, Beale and Huxley, besides others of less renown, concluding with a few remarks upon his own theory.

The conclusions drawn from these sources are:

"1st. That the 'cell,' or 'elementary part,' originating only in a pre-existing cell, is the ultimate morphological element of the tissues of animals and plants.

"2d. That the cell, contrary to the belief of the earlier histologists, and, indeed, many later observers, is *rarely vesicular* in its structure, but generally more or less solid throughout.

"3d. That the cell is composed of 'germinal' or living matter, which is central, and includes 'nucleus,' 'endoplast,' 'protoplasm' and 'sarcode;' and of 'non-germinal,' or 'formed' matter, which is peripheral, and corresponds with 'cell-wall' and 'intercellular substance.'

"4th. That this germinal matter of the cell, in a part or all of its substance, may assume a special morphological state, usually round or oval, commonly known as the 'nucleus' of the cell, which, when present, is always a young centre of germinal matter; but that in other instances both animal and vegetable cells may be complete without this special form of germinal matter or 'nucleus,' as in the non-nucleated amœbae and protogones primordialis of Hæckel, the non-nucleated monads of Cienkowsky, and in the leaf of Sphagnum, in such algæ as Hydrodictyon, Vaucheria, and Caulerpa, and in young germinating ferns.

"5th. That in consequence of these facts, it cannot be said that in the nucleus alone resides the power to reproduce the cell, since we find the nucleus not essential, but that in the germinal matter—of which, after all, the nucleus, when present, is a part—resides this function.

"6th. That when the smaller body within the nucleus, usually known as the 'nucleolus,' is present, as it often is in complete cells, it is simply a younger centre of germinal matter than is the nucleus itself, and is the last formed portion of the germinal matter, instead of being the oldest part of the cell, as originally taught by Schleiden and Schwann. And thus, according to the latest views, the whole process is reversed. The older order of succession being, 1st. The 'nucleolus;' 2d. About this the 'nucleus;' and finally about this the 'cell-wall,' which embraces the cell contents. Now, however, what constitutes the 'cell-wall,' when present, is the oldest part of the cell; next in age are the so-called 'cell-contents,' whether germinal matter or not; next the 'nucleus,' and last, and oldest, the 'nucleolus.'

"7th. That the formed material constituting the cell-wall and intercellular substance may be something chemically different from the germinal matter, or protoplasm whence it was converted, as the secretions of gland-cells, or may be a simple condensation of the exterior of the cell, as in the red blood disc.

"8th. That the so-called 'free nuclei,' so often referred to by

pathologists in their descriptions of minute structures, are simply masses of germinal matter, smaller than those to which the name cell is usually given, which, if time permitted, will pass into perfect cells by the usual production of formed matter in their periphery; that they do not originate spontaneously, but from previously existing germinal matter. So, too, 'granules,' if they be composed of germinal matter, present the same attributes and endowments, arising from previously existing germinal matter, capable of growing, multiplying, and assuming all the characters of fully formed cells, but never originating spontaneously. Granules otherwise composed are *histolytic*, and not *histogenetic*,—that is, they result from the breaking down of tissue rather than go to the building it up."

These views, it will be observed, coincide with the theory of Dr. Beale, which the author accepts, as "admitting, without distortion of its own principle or disregard of actual facts, of consistent application to a larger number of processes of tissue-building in health and disease, than any other theory proposed." He criticises Dr. Beale, however, for describing germinal matter as always structureless—contending that it is sometimes granular,—and for the application of the term *dead* to "formed matter." Appended to the work is a very full "bibliography" of the subject. The work is one from which the student can derive a very satisfactory knowledge of the elements of Histology.

H.

OBSTETRIC APHORISMS FOR THE USE OF STUDENTS COMMENCING MIDWIFERY PRACTICE. By Joseph Griffiths Swayne, M. D. From the Fourth Revised English Edition; with additions by Edward R. Hutchins, M. D. Henry C. Lea, Philadelphia, Publisher, 1870.

THIS little volume contains a clear and explicit statement of all the more important elementary facts in obstetric practice, a knowledge of which will greatly add to the usefulness and self-confidence of the young obstetric practitioner, and which, divested as they are of all extraneous matter, may be readily understood and quickly acquired. "The object of this work," says the author in his preface, "is to give the student a few brief and practical directions respecting the management of ordinary cases of labor, and to point out to him, in extraordinary cases, where and how he may act upon his own responsibility, and when he ought to send for assistance."

and to guard him "from the opposite extremes of temerity and timidity." * * * "For instance, the student who undertakes a case of placenta previa without sending for assistance, is an example of one extreme, and the student who sends for help to remove a detached placenta from the vagina, of the other." For students it is a valuable guide; to the general practitioner it is of no value, and cannot, in any case, supercede the more elaborate works on Midwifery. It fulfills admirably the purpose for which it was intended, "to serve the temporary purpose of a guide to beginners in the obstetric art." The chapter on abortions is an earnest warning to young practitioners not to yield to the temptations which will beset them on all sides to engage in this vile practice, together with much good advice concerning the manner in which they should conduct themselves on such occasions, with some interesting statements in relation to the rapid increase of this criminal practice. The Rev. Dr. Todd writes: "I would not advise any one to challenge further disclosure, else we can show that France, with all her atheism, that Paris, with all her license, is not so guilty in this respect, as is staid New England at the present time."

The following statistical comparison between New York and Paris is certainly very astounding: "The ratio of fœtal deaths to the population has swollen from 1 in 1,633, in 1805, to 1 in 340 in 1849, while in France, in 1851, there was only about 1 in 1,000." We shall find secondly, that "the fœtal deaths as compared with the total mortality, had increased from 1 in 37, in 1805, to 1 in 10.5, in 1868." And thirdly, that "the reported early abortions, of *which the greater number escaped registry*, bear the ratio to the living *births* of 1 in 4.04, while elsewhere they are only 1 in 78.5." And lastly, that "early abortions bearing the proportion to the still-births at full term of 1 in 10.2, in 1846, have increased to 1 in 4.02, in 1856."

"*In this description of New York we have that of the country.*"

A sad record, truly, and one that calls for active remedy.

We cordially commend the book to all young graduates. L.

A MANUAL OF CLINICAL MEDICINE AND PHYSICAL DIAGNOSIS. By Thomas Hawkes Tanner, M. D., F. R. S., &c. Third American, from the second English edition, revised and enlarged by Tilbury Fox, M. D. Pp. 366. 16mo. Henry C. Lea, Philadelphia.

IN the editor's preface we are told that, "the aim of this work is

to help the student to learn disease, describing for him the symptoms and signs of diseases, the conditions under which they arise, and the mode of detecting and recognizing them; and it is also intended as a book of reference for the practitioner as regards the diagnosis of disease." With this double purpose in view, the author and editor forthwith proceed to mass together as many facts as it was possible to compress within the limits of the volume, many of them of interest and importance, but obscured by others of no value whatever, to either practitioner or student. The work is one that will prove of great assistance to the practitioner, abounding as it does with practical suggestions and valuable tables and statistics for reference. It is to be regretted that there was not more singleness of aim in its composition. Why so much space should have been given to such statements as this we cannot divine: "The stethoscope is a cylinder of soft wood—generally cedar—from four to eight or nine inches in length, pierced through by a longitudinal canal about a quarter of an inch in diameter, and having one extremity large and flat as an ear-piece, while the other is much smaller and funnel-shaped for application to the thoracic walls. The object of such an instrument is to collect and convey to the ear of the observer the vibrating impulse of the air, or of the solid walls of the thorax, occasioned by the perpetual movement within." This certainly cannot materially "aid the practitioner." Again: "The lungs—the organs of respiration—are contained in the cavity of the thorax, one on either side of the spine. They are irregular conoid bodies, the bases of which rest upon the diaphragm, while the apices project upwards, extending somewhat above the level of the clavicles." The student who needs such facts as these has no business meddling with "the symptoms and signs of disease." The whole character of the work is too elementary even for students. To attempt to teach the whole science of pathology in a hand-book is certain to result disastrously; if a book of reference only was intended, the many pages similar to the above extracts are superfluous. In spite of these encumbrances, however, it will prove an acceptable addition to the library of all working physicians and hospital students, its data being taken from reliable sources, and its many practical hints worth considering. H.

MISCELLANEOUS.

Successful Extirpation of one Kidney.—The "London Medical Times and Gazette" publishes the following from Dr. Wells:

"SIR—I have just received a letter from Professor Wagner, of Konigsberg (so well known here by Mr. Holmes's excellent translation of his work on the healing process after the resection of bones and joints, published by the New Sydenham Society), and I think the following extract will be read with great interest:

"'As I passed through Heidelburg, I saw a patient of Simon's whose case will interest you extremely. A provincial surgeon had performed ovariotomy for her; and, on account of inseparable adhesions, had removed both ovaries and the uterus as far as the neck. The patient recovered. It appeared, however, that the operator had also injured the right ureter, for a urethral fistula formed in the cicatrix in the abdominal wall. This led to the patient going to Simon. After several unsuccessful attempts to cure the fistula, Simon at last *extirpated the right kidney*. He went in from the lumbar region, shelled the kidney out of its capsule, tied *en masse* and cut it away. I saw the patient *cured*, and going about with the fistula also cured. The ligature threads had not come away. Simon now proposes extirpation of a kidney for such diseases as echinococcus, abscess, hydronephosis, and renal calculi.'

"I may add that I have seen a healthy kidney, inseparably connected with a fibro-cystic tumor of the uterus, removed with the tumor; and, although the patient died on the third day, there was not one symptom which could be referred to the loss of the kidney. The urine was normal in quantity and character, and there was no sign of uræmia.

"I have also published cases which show that cysts of the kidney may be very successfully treated by tapping and drainage, and have joined in advising nephrotomy in some cases of renal calculi. When Simon publishes his case of extirpation of the kidney, he

will no doubt discuss the principle of this operation, and we shall be glad to have a broad distinction drawn between cases in which disease of one kidney is killing a patient, and such a case as that of a urinary fistula where life is *not* threatened.

"It may also be of some interest if I add that the lady from whom I removed a large fibroid uterus and both ovaries last summer, and of whose case I gave a short account in a paper on chloral in your number of October 2, 1869, is not yet at all strong, and occasionally suffers from pain and sickness.

"I am, &c., T. SPENCER WELLS."

Ammonia Injection in Collapse from Uterine Hemorrhage.—The "London Medical Times and Gazette" publishes the following letter from Dr. E. G. Wake, dated Collingham, Newark, December 27:

SIR: I beg to be allowed to publish in your columns some particulars of a case of collapse, following a very different cause from the one reported by Dr. B. Willis Richardson, but treated with the same remedy, and happily with a like result.

In obedience to an urgent summons, I visited Mrs. F., the mother of several children, on April 15, 1869. I found her suffering from profuse hemorrhage, at (as she supposed) the third or fourth month of pregnancy. This was at once stopped by plugging the vagina; but alarming symptoms of collapse were fast setting in. Vomiting, cold extremities and extreme jactitation were followed by absence of radial and brachial pulse, by the faintest heart-beat, and by seriously impeded respiration. As the patient has a great dislike to brandy—which was nevertheless tried without effect—I substituted the compound spirits of ammonia, and of this she took freely. Nothing, however, seemed able to restore the heart's action; and, in despair, I determined to try the subcutaneous injection of ammonia. The patient's home being five miles from mine, I had to wait at least an hour before the syringe was brought to me; and this is the only guide I have as to the length of time during which she was pulseless. That it was of no less duration than an hour I have not the slightest doubt. In my eagerness to use a remedy which seemed likely to loosen the fast-closing grasp of death, I injected a few minims of strong liquor ammoniæ over the sternum, as near the region of the heart as the breast would

allow; and this operation I repeated three other times—over the right biceps humeri, on the fore-arm, and between the shoulders. I cannot remember at this interval of time how many drops were injected, but I should say from ten to twenty each time. The result was most cheering; the pulse slowly returned, and the most pressing symptoms gradually gave way. The next day the cause of the flooding was removed by the forceps, and was found to be a false conception.

Thus far all was satisfactory; but I must own in candor that my treatment was followed by four frightful sores, which were not healed until the beginning of June. It would have been much better, therefore, if I had diluted the ammonia, according to Dr. Halford's plan; and the urgency of the occasion can be my only excuse for having failed to do so.

I am, &c., E. G. WAKE, M. D.

New Theory of the Formation of Urea in the Organism.—Schultzen and Nencki, of Berlin, have developed by a new series of researches their view of the process by which, as has long been known, the greater part of the nitrogen contained in food passes from the body in the form of urea. They oppose the earlier view, according to which uric acid and similar substances are stages through which the change of albumenous substances into urea is effected, and regard the nitrogenous acids of the fat series, especially glycocoll and leucine, as being the preliminary stages toward urea. Since both these substances result from the decomposition of albumenous substances by chemical reagents, as well as from the influence of animal ferments, such as the pancreatic juice, so the authors believe they can prove the correctness of their view by establishing the further change of these substances into urea in the organism. With animals, from which a constant secretion of urea has been produced by long subsistence on a uniformly regulated diet, a regular increase in its quantity was observed when glycocoll was added to the food; and, further, this addition increased with the quantity of the added glycocoll, and contained just as much nitrogen as was contained in this addition to the food. Corresponding results were obtained also with leucine, while, on the other hand, it was shown that acetamid passed unchanged through the organism. In order to furnish absolute proof of the conclusion

that glycocoll and leucine, when they are assimilated into the organism, are separated in the form of urea, further researches will be pursued. The experiment proposed is to fix a portion of the glycocoll in the organism, which can be effected by Benzoic acid, hippuric acid being the result, and it is expected that a corresponding failure of the regular secretion of urea will take place.

Calomel Vindicated.—It is needless to say how much the Medical Profession was vituperated some years since for its alleged misuse of calomel, especially in the diseases of children. It was asserted in some quarters that if children were delicate and ill nourished; if their bones and joints were weak; if they were weedy at puberty; and, above all, if their teeth decayed early, that these evil results were due to their having been drugged early in life with that pernicious mineral, mercury, in some of its forms.

The main fact, which was overlooked by the makers of these accusations, was, that some children are born delicate, and that being delicate, they are more liable than other children to a variety of derangements attended with disorder of the digestive organs and feverishness. Screaming and restlessness at night, headache, pale motions, and fits of sickness, with ejection of green acid matter, are about the commonest forms of these derangements. It was discovered that a small dose of calomel presented by far the easiest and most agreeable method of treatment, for it acted speedily on the bowels, and could be administered without the struggling and nausea caused by more bulky and disagreeable drugs. It is quite certain that children were made to take calomel because ill, and were not made ill originally by taking calomel. There is not an atom of evidence to show that any of the evidences of delicacy at puberty were caused by the calomel, for the teeth of such children as we have described will decay whether they take calomel or not. The real objection to calomel was, that, being so powerful and sure a remedy for the getting rid of the ill consequences of cold and improper food, parents were tempted to neglect hygiene, and to take less pains against their children becoming ill, because they had in calomel so rapid a means of making them well again.

Anyhow, there is no doubt that there is a great decrease in the use of calomel in the nurseries of people of the better classes, especially amongst the fanciful and overeducated. The parents are

panicstruck at the use of a drug which has a bad name, and the medical practitioner attains his end by other means, though he knows very well that if there is real danger to life he has his old sheet-anchor to trust to. Meanwhile there is solid gain in the fact that both parents and doctors pay more attention to diet and management.

But it is worthy of notice, and is an irrefragable evidence of the value of calomel, that whilst in the upper classes parents and doctors restrict themselves in the use of it, the middle and lower classes use it of their own accord to a large extent in the form of Steedman's or Stedman's Soothing and Teething Powders, an analysis of which is before the readers of the *Medical Times and Gazette*. In almost every country village, the *materfamilias* trusts to Stedman (or his homonym, Steedman—we know not which is the "only original") in the feverish attacks of her babies. She has proved by ample experience that the half-grain of calomel lowers the pulse, relaxes the skin, and relieves the inflamed gums, by giving vent to the abdominal secretions—in fact, the *vox populi* vindicates the practice of our fathers; and though we try to do without calomel so far as we can, and to render it unnecessary, yet we claim that the practice was rational and harmless in good hands and vindicated by experience.—*London Medical Times and Gazette*, January 8, 1870.

An Obstetrical Anomaly.—Dr. J. P. Chesney, of New Market, Platte county, Mo., writing to the "New York Medical Gazette," says: The domain of medicine is practically illimitable. There is hardly a day in the life of the observant practitioner but that there is something strange presented for his investigation. I was requested this morning to visit Mrs. S., the mother of two children, each of them having presented by the feet at the time of birth. I found her pregnant, at the end of the third month, and threatened with abortion. An examination per vaginam disclosed hemorrhage, and the point of the finger came in contact, high up in the pelvic cavity, with a mass as large as an ordinary fœtal head, soft, movable, but seemingly attached to the os uteri at its superior portion. I at once concluded that the whole conception—child, placenta, membranes, etc.—had been altogether extruded from the uterine cavity; but a little manipulation corrected this error, as the

sac easily ruptured, and left the finger in absolute vacuity, nothing remaining in the pelvic cavity save a little fluid blood. Revolving the anomalous condition in my mind, I concluded that this sac was the chorion, thrown off and filled with a gaseous exhalation, the residue of the conception yet remaining in the womb. The latter assumption proved correct, as late this afternoon a three months' fœtus and small placenta were thrown off. The above particulars were not, however, the only interesting items connected with this case. It will be observed that I have above used the term "pelvic cavity," where seemingly I could more appropriately have used the simple term "vagina." I did so in this instance to more fully express the condition of the part, for in truth it was a "cavity," and, to my mind, a most enormous one. The pubic arch was very low, and the perineum was very deep and resisting, causing the ostium vaginæ to painfully constrict the finger during the examination. The digital exploration revealed to the touch not a thing in reach; above, beneath, laterally, and in advance, all was cavity. By turning the pulp of the index back toward the face of the perineum and os pubis, the mucous membrane was felt tightly adhering to these parts, stretched seemingly as tight as a drum-head. Dr. J. Marion Sims truly says that there are no two vaginas exactly alike; and this case strikingly resembles the case of the patient sent that eminent gentleman, from New Orleans, by Drs. Stowe and Axon, in 1856. The outlet of the vagina in that patient was enormously large, whilst in my case it was *enormously* small, constituting an essential difference, though the *personelle* of the two women was very much alike, mine being tall, slender and bony, twenty-five years of age, and in good health generally. I do not think, however, that my patient would be benefitted by a "globe pessary nine inches in circumference," if she should ever be under the disagreeable necessity of being treated for a "procidentia." I have hastily detailed the facts in the above case, in "unboulted language, meal and bran together, I throw without distinction," hoping that it may prove "something worth." Has anybody seen a case like it?

A Curious Case in which Incontinence of Urine was the first and almost the only Symptom of Prostatic Retention, with Secondary Disease of the Kidneys.—We extract the following particulars, by Jonathan Hutchinson, F.R.C.S., from the fourth volume of London

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Hospital Reports: In this case the patient suffered from involuntary discharge of urine, which at first suggested the probability of diabetes or Bright's disease, but no sugar or albumen could be detected. Dr. Peacock though that, although some of the urine was voided, a large residuary quantity might be retained; and this opinion proved correct, for, on the employment of the catheter, a large quantity of water was drawn off. The patient now ceased to suffer from incontinence, but he also ceased to pass his urine voluntarily, and the use of the catheter was required daily. Mr. Hutchinson found on examination by the rectum that the prostate was enlarged, but still the catheter encountered no obstacle at the neck of the bladder. The condition of the patient became gradually worse, and yet no definite cause could be assigned for the symptoms, and death ensued after a state of somnolence. The *post-mortem* examination revealed the facts that the ureters were as large as small intestine; that the right kidney was a mere bag filled with fluid; that the left was much enlarged and inflamed; that the bladder was of large size, with thick fasciculated walls, and that the prostate was moderately enlarged, but that an almost pedunculated lobe projected from it into the bladder. Mr. Hutchinson observes that the whole kidney mischief was secondary to concealed and unsuspected retention, which had probably existed for some time, and that if the condition had been recognized at an earlier period the remedy would have been found in the use of the catheter, or in the establishment of a permanent fistula above the pubes. In the case described, however, the patient complained of so little uneasiness, and attended so regularly to his business every day, that no serious danger was apprehended even by himself; and the only complaint he made was that he frequently wetted his bed and lost his urine while walking.

The Sleep of Plants.—To explain the phenomena of the sleep of plants, some authors have had recourse to light, others to heat, and others again to a natural property of vegetable organisms which they term "tumidity." In general they have not distinguished between the causes which produce sleep in the flowers and in the leaves; but these ought not to be confounded. Light is only an accessory cause of activity in flowers, while it is one of the principal causes of activity in leaves. By compensating the deficiency of

light by an increase of heat, one may force flowers into activity in total darkness, while the leaves will present a very imperfect vitality. For the activity of flowers heat only is necessary; for that of leaves both heat and light. Leaves are, in fact, the principal organ of vegetation of the plant, receiving the juices and elaborating them under the influence of light. In consequence of these functions, leaves face the sky and the earth, while flowers, on the contrary, affect all kinds of positions. In those trees known as "weeping trees," in which the leaves droop towards the earth, the leaf-stalk becomes twisted. The sleep of leaves is owing to an unequal dilation either in the blade or the leaf-stalk. The hibernation of plants during the cold season is an entire cessation of the vegetative functions; their sleep is, on the other hand, a repairing act, similar in some respects to that of animals. In some plants the flower sleeps during the night, the leaves during the day. As with men and animals, either cold or very intense heat produces in plants a diurnal sleep. Notwithstanding artificial darkness, both plants and animals wake during the day, but show some symptoms of somnolence. During the sleep of flowers the corolla assumes its proper position of æstivation, as animals place their limbs during sleep in the position they occupied in the fœtus state; the same position is also assumed shortly before death.—*M. Ch. Royer, in the Bulletin de la Societe Botanique de France, December*, 1869.

Inhalation of Etherial Tincture of Valerian in Hysteria.—M. Guillemin brought under the notice of the Paris Therapeutical Society the great advantages he has derived from this practice. Inhalation for the production of anæsthesia, he observes, has occupied so much attention of late, that the employment of this means for other purposes has been neglected. Repeated experience has convinced him that, employed in the hysteric convulsive paroxysms, it is a most valuable agent. He drops twenty drops of the officinal tincture of the French Codex in a compress, or holds the mouth of the bottle containing it to the patient's nostrils, the inhalation being continued for about a minute. Repeated again, the paroxysm is usually at once relieved, the patients passing abundance of urine and complaining of great debility. The specific effects of ether have never been observed from the inhalation.—*Gazette Med.*, December 25.

Effects of the Bromide of Potassium, when Administered in Large Doses.—Without going into a detail of all the physiological and therapeutical effects which result from the employment of bromide of potassium, Dr. Hammond, Professor of Diseases of the Mind and Nervous System in the Bellevue Hospital Medical College, points out some of those which occasionally ensue after its use in large doses. This is appropriately done by relating the particulars of several cases which have come under his immediate notice.

The symptoms due to large doses of the bromide may be stated as follows, in the usual order of their occurrence:

1. Contraction of the pupils.
2. Drowsiness.
3. Weakness of the arms and legs.
4. Depression of mind.
5. Failure of memory.
6. Delusions.

The first three of these are, Dr. Hammond thinks, usual accompaniments of an active dose of the medicine—one capable of producing an influence over such an affection, for instance, as epilepsy. They simply show a sedative effect due to cerebral anæmia. In adults they never, so far as the author's experience goes, follow a less dose than ten grains. Doses of five grains produce no obvious effect.

No permanent difficulty results from very large doses of the bromine; all the symptoms due to it ceasing soon after the administration is stopped. In some diseases, such as epilepsy and paralysis agitans, it is frequently necessary to push the medicine to the utmost limit of endurance before its power is manifested.

Dr. Hammond always administers the drug in a largely diluted form—not only with the view of avoiding the nausea and purgation due to concentrated saline solutions, but in order to secure its more ready absorption.—*Quarterly Jour'l of Psychological Medicine.*

A Remarkable Case of Retroversion of the Uterus of Eighteen Years' Standing Successfully Treated by Elytrorrhaphy.—Dr. J. Byrne gives an interesting case of cure of retroversion and prolapsus of the uterus by operation. The subject had a child at seventeen. Soon after she complained of great dysuria and bearing-down. Complete prolapsus ensued. At the end of eighteen years

she came under treatment. The tumor was returned within the pelvis. A bag was passed into the rectum and inflated so as to raise the fundus uteri, whilst a tenaculum seized the hypertrophied anterior lip of the uterus, and by this double action the uterus was restored to its normal position. It was found that when the anterior vaginal wall was firmly seized by a hooked forceps, and if at the same time by a sound in the cavity of the uterus, efforts were made to produce retroversion, no amount of force compatible with the integrity of the tissues could succeed in doing so; but when the forceps was removed, and the tension on the vesico-vaginal septum thus removed, there was not the slightest difficulty in producing retroversion. It was therefore concluded that an operation similar to that practised by Sims for cystocele and prolapsus uteri might succeed. The anterior wall of the vagina was depressed so as to make two ridges, longitudinally extending from the meatus urinarius to within half an inch of the os-uteri. These ridges were denuded, and the surfaces were brought into apposition by seven interrupted sutures. When the parts had healed, it was found that even by a sound in the uterus retroversion could not be produced. The patient made a good recovery, the retroversion and prolapsus being cured.—*American Journal of Obstetrics; and British and Foreign Medical-Chir. Review.*

Epidemic of Puerperal Fever and Typhoid Fever at the Hospital St. Antoine.—During the last two months, a severe epidemic of typhoid fever prevailed in the obstetrical wards of the Hospital St. Antoine. The administration of the hospital at length took the determination of emptying the wards completely. During nine days they remained closed; the walls were whitewashed, and a few beds changed. They were then thrown open once more to pregnant women, and, strange to say, since that time not one case of puerperal fever has been returned. M. Lorain, who has charge of this department, expresses his surprise at the occurrence, and considers the contagious matter, or miasm, is of so light a kind that it will never be detected. He contends that if it were of a palpable or material description it would have stuck to the flooring and bedding, which remained untouched, and would have produced a recurrence of the epidemic. M. Lorain has at present an epidemic of typhoid fever in his other wards at St. Antoine, and has observed

two remarkable cases of return of the disease after convalescence. It may be questioned, however, whether they were not simply instances of relapse.

Operative Treatment of Varicose Veins.—Mr. Marshall operated in the following manner on varicose veins of the right leg in a young woman. A bandage was first applied round the limb just above the knee-joint, in order to produce distention of the affected veins. Under the thickest masses of varix were passed large broad needles, resembling very much those formerly used for inserting setons. The sharp extremity of each of these needles was then detached; over the vein at the seats of puncture were placed small pieces of a thick gum-elastic tube, and the inner surface of the vein at these points were kept in contact between the broad needle below and the elastic tube above by means of a ligature applied in the figure-of-8 form. Small branches of the distended and varicose veins were then treated by the ordinary thin pin and suture. Mr. Marshall stated that it was his practice to remove the pins after forty-eight hours, or at the end of the third day at the longest, leaving the pieces of elastic tube and the ligature *in situ;* and to bandage the limb. The cases treated in this manner have generally had a good termination, the veins becoming obstructed by adhesive inflammation, and, in most instances, without the appearance of even a few drops of pus.—*London Lancet.*

Purely Milk Diet in the Treatment of Diabetes Mellitus.—During the last three years Dr. Donkin, Lecturer on Forensic Medicine to the University of Durham, and Physician to the Sunderland Infirmary and Dispensary, has, in certain diseases, put the milk treatment, *methodically persevered in*, to the test of direct experiment, both in hospital and private practice; and with success much beyond his own expectation. The author records two cases of diabetes mellitus in which the disease was far advanced, and the symptoms fully developed. In the one the patient was *rapidly* restored to a condition of health and strength, a little sugar only remaining in the urine to show that the disease was not completely eradicated. In the other, however, *the cure was rapid and complete.* Dr. Donkin claims to be the first who has treated and cured this disease by an exclusively milk diet.—*Lancet.*

Regeneration of Cartilage.—The Paris correspondent of the "Medical Times and Gazette" writes: "Some recent experiments have been made by a young physiologist, Dr. Peyraud, of our city, on the regenerative faculties of cartilage by its perichondrium. In these experiments, though the microscope did not do all, it nevertheless helped to establish what the eye, unarmed, could only have supposed, and would always have doubted.

"It has long since been thought that the density of the intercellular substance of the cartilaginous tissue, and the scanty amount of nutritive fluid which consequently it can only imbibe, are the main reasons why cicatrization of this tissue progresses so slowly, and why regeneration cannot take place.

"Redfern's experiments, repeated about the same time in France by M. Broca, 1851, have sufficiently proved that the cicatrization of cartilage takes place, but, as they thought, always by means of fibrous tissue and never by cartilage. M. Ollier, who has also made numerous experiments upon both permanent and temporary cartilage, all of which may be found recorded in his great work on the regeneration of bones, has noted in some of them the existence of a few cartilage cells situated in the fibrous cicatrix, close to the line of incision. These cells, however, were so few in number and so imperfect, that they could only be recognized with the aid of a chemical reagent (tincture of iodine). M. Ollier consequently concludes with MM. Redfern, Broca, and Meunier, that the cicatricial tissue of cartilage is fibrous and does not undergo cartilaginous transformation. The results of his experiments upon the epiphysial cartilages of long bones were identically the same —that is to say, the gap was always filled by fibrous tissue.

"Kolliker holds the same opinion, and in his last edition of 'Human Histology' he says: 'Cartilage shows no disposition at regeneration, and wounds of that tissue are not cicatrized by means of a cartilaginous substance.'

"M. Le Gros, in 1867, presented a *memoire* to the Societe de Biologie, defending the regenerative power of cartilage. His experiments consisted in simple incisions of the articular cartilage, care being taken not to allow the air to enter the cavity of the joint, which was accomplished by displacing the integuments so that the opening in the skin did not correspond to the wound of the articulation. These experiments proved that cartilage cells gradu-

ally take the place of the fibrocellular substance, which is the first to form the cicatrix. But the regeneration was a failure whenever the operation was followed by suppuration. Of course, these experiments only succeeded in young animals in whom nutrition is very active, for it is well known that the more nutrition a tissue receives the more apt is it to regenerate itself.

"The great value of Dr. Peyraud's researches consists in the fact that they have established not only the possibility of the regeneration of cartilage, but they have proved, beyond doubt, that this power lies exclusively in the perichondrium, and this permits of a parallelism between the specificity of this membrane and the periosteum.

"The animals experimented on were mostly young dogs, from two to six months old, because the perichondrium at that age is very thick, can be detached without great difficulty, and, as already observed, is more richly supplied with blood-vessels. The cartilage which is most suitable for these experiments is the costal cartilage. Those of the ear or nose give equal results, but require more care on the part of the operator.

"For those who wish to repeat the experiments I would say: Make an incision parallel to the direction of the rib down to the perichondrium. Incise this membrane along the middle line of the anterior surface of the rib; pass a sharp spatula beneath the perichondrium, denuding it from the portion of cartilage to be removed, so as to leave an empty sleeve of fibrous membrane.

"The result of these experiments—over thirty in number—made by Dr. Peyraud, has been a perfect regeneration of the removed cartilage by cartilage. The chondoplastes were always more numerous and further advanced in their development at the circumference of the rib than in the centre. The two ends of costal cartilage had taken no part whatever in the regeneration; these ends were found rounded off, cone-like, and calcified or ossified. Many of these specimens have been examined by some of our first microscopists (Vulpian, Cornil, Ranvier). Their exactness has also been verified at recent meetings of the Societe de Biologie and Societe d'Anatomie. The animals were sacrificed from one to six months after the experiments, so that the experimentist was able to study the regeneration of the cartilage in all its phases.

"The same resections practiced without preservation of the peri-

chondrium gave negative results in each and every experiment. The perichondrium, therefore, or the anatomical element situated upon its under surface, regenerates cartilage just as the osteogenic sheet, situated beneath the periosteum, regenerates bone."

On the Contagious Origin of Catarrhal Conjunctivitis.—M. Gosselin, in the "Archives Generales," observes that besides purulent ophthalmia, which is admitted by all to be contagious, there are forms of conjunctivitis in which only a small quantity of pus is secreted, which becomes mixed with a notable amount of mucus and tears. This, which he terms semi-purulent conjunctivitis, in which the pus is only recognized by the microscope, is, however, also transmissible by contagion; and the same may be stated of conjunctivitis, which at an earlier stage has been purulent, and at a later one only furnishes a minute portion of pus mingled with mucus. Many writers admit that granular conjunctivitis is contagious, but it is not clearly stated whether this admission is confined to what are called true or neoplastic granulations, which are very rare, or to the false or papillary granulations resulting from hypertrophy of the conjunctival papillæ, which are usually met with.

Having paid much attention to this subject, M. Gosselin lays down the following positions, illustrating them by some cases: 1. Non-purulent conjunctivitis is sometimes acquired by contagion from a similar form of conjunctivitis. This is not unfrequently met with in parents who have acquired it from their children, who themselves may have acquired it in schools, &c. Catarrhal ophthalmia so contracted is usually of little importance, but the possibility of its being so produced enables us to guard against it by insisting on the separation of the patient from the contact or vicinity of those we wish to preserve from it. In some cases where this precaution has been neglected, the acquired disease may not be so simple in its course, but may become chronic, or involve the cornea. 2. A simple catarrhal conjunctivitis may originate from a purulent conjunctivitis. M. Gosselin has never witnessed this as yet in the case of adults, although he believes it possible; but he has often seen nurses and others attending on infants suffering from purulent ophthalmia become themselves the subjects of simple catarrhal ophthalmia which has promptly disappeared under prophylactics. He also gives a case at length, in which an adult acquired catarrhal oph-

thalmia from a child four years and a half old, having purulent ophthalmia, and which also exhibits the liability to relapse while exposed to the same influence. 3. Catarrhal ophthalmia may be due to more or less chronic granular conjunctivitis. Papillary granulations may result from catarrhal and semi-purulent conjunctivitis, and these, even when only in the form of blepharitis, may induce a catarrhal conjunctivitis, which itself is susceptible of becoming, but does not necessarily become granular. At the Hospital des Enfants Assistes, where are temporarily placed the children of patients who are obliged for various complaints themselves to enter hospitals, catarrhal conjunctivitis is often acquired, and usually from subjects having granular conjunctivitis; and the children, when restored to their parents, frequently convey to them either simple or granular conjunctivitis.

As a general conclusion, M. Gosselin says that he feels quite authorized to state that simple catarrhal conjunctivitis, muco-purulent, or semi-purulent conjunctivitis, and granular conjunctivitis, are, as well as the purulent form, susceptible of being communicated by contagion, both by contact and miasmata; and that in consequence in such cases we should employ the following precautions: 1. Separate, wherever possible, the subjects of this affection. 2. When isolation is not possible, recommend the greatest care in the exclusive use of handkerchiefs, napkins, objects of dress, &c. 3. Avoid all contact with the faces of the patients. Examine carefully the eyes of persons obliged to remain near those cases, so that any conjunctivitis that may arise may be summarily arrested. 5. Insist on these recommendations being especially observed in small rooms, schools, asylums, and children's hospitals, as accumulation of many subjects in the same atmosphere strongly predisposes to contagion.

The Composition of Chlorodyne.—Mr. Edward Smith reports, in the "Pharmaceutical Journal" for January, an inquiry into the composition of this well-known secret remedy. Hitherto, of the formulæ which have been published, two—one by Dr. Ogden, the other by Mr. Squire—have attracted most attention in this country. The difference between these lay essentially in the presence of Indian hemp and capsicum, as indicated by Ogden, their absence in the formula given by Squire. But besides this, the proportion of morphia, as given by the two authorities, differed greatly. About

the three important ingredients—chloroform, morphia, and hydrocyanic acid—there can be no doubt; no more can there be about oil of peppermint and treacle. The question is whether anything else exists in the compound. Mr. Smith thinks there is no Indian hemp, because the alcoholic extract is soluble in water; but then there is capsicum, as, after the chloroform and ether, which also give pungency to the mixture, have been distilled off, the substance left behind has a hot peppery taste. He seems to have taken much pains with the analysis. Here is the composition he assigns to chlorodyne:—

℞ Chloroformi f. ʒ iv.
Morphiæ mur. gr. xx.
Æther. rectif. f. ʒ ij.
Ol. menthæ pip. *m.* viij.
Acidi hydrocyanici dil. f. ʒ iv.
Tinct. capsici f. ʒ vj.
Mist. acaciæ f. ʒ j.
Theriacæ ad f. ʒ v.

This is not quite so dark as the original, as no caramel is used. Mr. Smith suggests for it the title Liquor Chloromorphiæ Co., as not likely to be confounded with that of any other compound.—*Medical Times and Gazette.*

Effects of Carbolic Acid on the Economy, on Vegetable Parasites, and Diseases of the Skin.—Dr. Neumann, of Vienna, has published in Dr. Pick's "Archiv fur Dermatologie und Syphilis," Part III. (1869), an excellent article on the above subject. The author experimented largely on animals and plants, and has used the acid in a certain number of cases, the principal of which he relates. Dr. Neumann sums up as follows: Carbolic acid is an energetic poison, which acts directly on the nervous system; its external or internal use may cause death. It acts three times more quickly when injected under the skin than when taken into the stomach. The acid is used in scaly skin diseases, but especially in their early stage; it may be used as a caustic in chronic inflammations, and in parasitic affections. The acid, finally, possesses the power of arresting the germination of the lower vegetable organisms; but the solutions must for this purpose be stronger than has been advised—viz: 1 in 500 or 100, and not 1 in 1000.—*Lancet.*

EDITORIAL.

THE Medico-Chirurgical Faculty of Maryland will call a meeting on the second Tuesday in April, at which not only its permanent members are expected to be present, but to which the entire profession of the State shall be invited. By late changes in its Constitution, the Faculty have wisely opened the door to all comers of good standing, as annual members, at a fee of two dollars—having all the rights and privileges of permanent members.

The friendly relations which these meetings may be expected to promote, not only between city and country members, but among the cliques into which we have so long, and so banefully, been divided in the city, promise large results. And certainly we have a right to expect that so liberal a profession should be able to put aside all petty rivalries, and jealousies, for at least one week in the year, and work with accord in advancing those larger purposes which only united action can bring to fruition. There are many ethical and other points that will bear discussion, especially those relating to illegal abortion, and the various forms of quackery.

To frame codes of ethics, and publish them for the guidance of the profession, amounts to almost nothing. There are constant complaints of oppression and wrong-doing of the stronger and unscrupulous, towards the weaker and conscientious. That there should be some tribunal before which the more flagrant of these offenders may be brought, is obviously of vital necessity. And that such a body should be strong to reprove, and if needs be, to punish, it is necessary that it shall be sustained by the common profession of the State.

But we expect more good from the simple fact of there eing such an annual assemblage of the profession, than from ıy special action. Nothing is more potent in the preven- on of wrong, than the fear of public opinion. If we can nite the profession so as to give more distinctness to it as profession—if we can make it something more than erely *the Doctors living in Maryland*, and establish these nnual conferences upon a permanent basis—there will be a holesome restraint laid upon all cliques and individuals, at must result in good. It is chiefly for this reason that e are anxious that the meeting in April should have full epresentations from all of the counties, as well as the city.

It is a matter for congratulation that the Baltimore Iedical Association and the Pathological Society, have etermined to hold their meetings hereafter at the rooms f the Medico-Chirurgical Faculty. While the latter will ways prove an attractive place of resort, with its com- ortable reading rooms, its valuable library, and its inter- sting fortnightly lectures, the local societies will in their phere—in the discussion of medical questions, the relat- ng of cases, and reading of papers on medical topics— upply a necessity which exists in every large community or means of frequent intercourse between the earnest and vorking men of the profession.

We trust that we are now started upon a course of per- nanent prosperity. Certainly our societies in the past ear have been well attended, and their proceedings gen- rally of interest. Let the older and more influential mem- ers of the profession follow the example of their brethren n Europe, and in our northern cities, and not disdain to oin in discussions, where their experience and knowledge an be made available to others.

MR. ROBERT HOUSE is the authorized agent for this Journal in Baltimore city.

THE Medical School of the Washington University held its annual commencement on the 22d ult., at the Masonic Temple. The graduating class, numbering forty-eight, was addressed by the Hon. J. Randolph Tucker, and responded through Dr. S. R. Coleman. The occasion was in every way creditable to this vigorous school, and offered a happy augury of its future prosperity.

WE have received from Messrs. Neale, Harris & Co., agents of the Lake Vineyard Wine Co., samples of California wine and brandy, recommended for medicinal purposes on account of their purity. It would be well for physicians to enquire whether these wines could not be substituted with advantage, in many cases, for the adulterated foreign brands in such common use.

BOOKS, PAMPHLETS, ETC., RECEIVED.

From the publishers:

THE CELL DOCTRINE: ITS HISTORY AND PRESENT STATE. For the use of Students in Medicine and Dentistry. Also, a copious Bibliography of the subject. By James Tyson, M. D., Lecturer on Microscopy in the University of Pennsylvania, and on Physiology in the Pennsylvania College of Dental Surgery; Fellow of the College of Physicians of Philadelphia, etc., with a colored plate and other illustrations. Philadelphia: Lindsay & Blakiston. 1870. For sale by J. S. Waters, Baltimore. Price $2.

THE HALF-YEARLY ABSTRACT OF THE MEDICAL SCIENCES. Being a digest of the British and Continental Medicine, and of the Progress of Medicine and the Collateral Sciences. Edited by William Domett Stone, M. D., F. R. S. (Exam). Vol L., Jan. 1870. Philadelphia: H. C. Lea.

From the authors:

REPORT OF THE COMMITTEE ON THE RELATIONS OF ALCOHOL TO MEDICINE. By John Bell, M. D., Chairman. Extracted from the Transactions of the American Medical Association. Philadelphia: Collins, printer. 1869.

REPORT ON THE HISTORY, SYMPTOMS AND DIAGNOSIS OF GLANDERS AND FARCY IN HORSES. Being a series of investigations by request of Maj. Jas. G. Paxton, Quartermaster at Lynchburg, with a view to eradicate this disease from the horses of the Confederate States army. By John R. Page, Surgeon P. A. C. S., and I. I. Terrell, Assistant Surgeon P. A. C. S. Lynchburg: Johnson & Schaffer. 1864.

CONTRIBUTIONS TO PRACTICAL LARYNGOSCOPY. Four Cases of Morbid Growths within the Larynx, reported by A. Ruppaner, M. D., Physician to the New York Dispensary for Diseases of the Throat and Chest. New York: D. Appleton & Co. 1870.

REPORT OF THE COMMITTEE ON MEDICAL EDUCATION. Extracted from the Transactions of the American Medical Association.

SECOND ANNUAL REPORT of the New York Orthopædic Dispensary, located at 1299 Broadway.

THE
Baltimore Medical Journal,
A MONTHLY RECORD OF
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OL. I. APRIL, 1870. No. 4.

ORIGINAL COMMUNICATIONS.

VACCINATION.

BY DR. A. B. ARNOLD.

N looking over the numerous and extensive works of recent ate on the subject of vaccination, the impression is left hat the whole matter is once more undergoing a searching nvestigation, as if some startling revelation had been made vhich unsettled the belief in the protective power of vac- ination, shared both by the profession and the public. t is evidently owing to the latter circumstance, whether ustifiable or not by new facts and observations that have een brought forward, to which may be attributed the gen- ral effort of again testing the value of the great discovery f Jenner. The number of prize essays, pamphlets, and rticles in the daily press, which the controversy thus tarted has elicited, testifies to the profound interest taken n the matter by governments and non-professional persons; nd its animated discussion in one of the principal medical ssemblies of Europe, that almost partook of the acrimony haracteristic of political bodies, shows that a point has een reached in the dispute where a renewed and more

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thorough examination of the whole question is urgent
called for. The good effect of this agitation is alread
apparent in the positive assurance given by competent me
that their confidence in the protective efficacy of vaccina
tion is as strong and as well-founded as ever.
It would certainly have been very strange if any oth
conclusion had been arrived at, in face of the concu
rent testimony and the reliable tables of statistics, bo
local and national, which continue to testify to the benef
cial results of vaccination in greatly lessening the occu
rence of smallpox, and in mitigating this disease by mod
fying its character. At the same time it must, nevertheles
be conceded that no inconsiderable change has taken pla
concerning some of the views in relation to vaccinatio
which used to be universally accepted. A fair and impa
tial statement of the grounds on which this change
opinion is based will disclose the fact, that the medic
profession, guided by a truly philosophical spirit, do
neither hastily surrender any of its well-attested truths
a vague clamor of opposition, nor hesitate in paying du
regard to the teachings of more extended observation
and better devised experiments.

The great mass of information, and the copious accoun
contained in the contributions of recent vaccinographer
are principally concerned in elucidating the following thr
points, which may be best put in the form of questions:

1. Are smallpox, cowpox and horsepox identical di
eases?

2. Has humanized vaccine lymph deteriorated by trans
mission?

3. May the operation of vaccination become the sourc
of communicating dangerous and implacable diseases?

It is well known that Jenner firmly believed in the iden
tity of smallpox, cowpox and horsepox, and inclined t
the opinion, which was shared by his immediate follower

at horsepox is the original disease from which the hers were derived. Some of the earlier experiments stained this view, and besides it was reasonable to con-ude on theoretical grounds, that if vaccinia prevents an tack of variola, then these diseases must be identical in ature, and that consequently vaccinia confers the same mmunity from the contagion of variola as a previous tack of this disease. This inference, however, has been dly disproved by experience, which makes it of practical portance to ascertain the exact relation between these iseases. Dr. Ballard, who is high authority on this sub-ct, gives full weight to a number of crucial tests which howed that the vaccinous disease was produced when cows ere inoculated by the smallpox virus. These positive roofs in opposition to negative results he accepts as suffi-ient evidence of the possibility of producing vaccinia by he inoculation of variolous poison. On the other hand, ven the most strenuous advocates of the identical nature f cowpox and smallpox, admit the difficulty of inducing, y this means, the vaccinous disease. Mr. Badcock states hat he succeeded in seven experiments, and failed in ninety-hree. A large number of other experimenters report complete failures. Such was the unsatisfactory state of the controversy when, in 1865, the French Academy appointed a committee consisting of MM. Chauveau, Viennois and Meynet, who performed fresh experiments, and obtained the following surprising results:

1. That human smallpox may be inoculated upon the ox and horse with the same certainty of effect as the vac-cine virus.

2. That the effect produced, however, by the inocula-tion of this kind of virus, absolutely differs. In the case of the ox, smallpox virus only produces an eruption of pap-ules, so small that, unless a person were forewarned of their existence, they would pass unperceived. Vaccine virus,

on the other hand, produces a true vaccine eruption, with large and well marked pustules. In the case of the horse, smallpox virus produces, as in the ox, nothing more than a papule, without secretion or crusts; and, although this eruption is much more marked than in the ox, it could never be confounded with horsepox, which is remarkable for the abundance of its secretion, and the thickness of its crusts.

3. Vaccine virus inoculated into animals of the horse and ox species preserves them from the operation of the virus of the smallpox.

4. Smallpox virus inoculated into these same animals imparts an immunity from the operation of vaccine.

5. Although the virus of smallpox be assiduously transmitted through a series of oxen, or a series of horses, nothing like vaccinia is developed in either.

"The question at issue," as a writer in the British and Foreign Medical and Chirurgical Review justly remarks, "is, whether the papular eruption, which follows the inoculation of the cow with smallpox matter, in a large number of cases, is the disease produced by the inoculation, or whether the rarer phenomenon of a vaccine vescicle, which occasionally succeeds the variolous inoculation, is the appropriate pathological sequence of that inoculation." The French commission takes the former view, which agrees with the observation of earlier experiments made at the Veterinary School of Berlin, and at Boston. Moreover, M. Chauveau inoculated the human system with some of the ichor obtained from the papules, and produced smallpox. The final settlement of the question, whether the inoculation of the smallpox virus into the system of the cow is followed by the production of vaccinia, is therefore as far off as ever. This much, however, is certain, that smallpox and cowpox are not identical diseases, for they differ in their symptoms, and are not mutually convertible.

The ingenious explanation offered by Dr. Beale regarding the relations of variola, vaccinia and equinia, and the mode of propagation of these diseases, assigns to them the position of different species of the same genus.

In answer to the second question: Has the humanized vaccine lymph deteriorated by transmission?—the language of Jenner is precise. He says: "I vaccinate the poor here weekly, and the pustules (vesicles, if you please) are in every respect as perfect and correct in size, shape, color, state of the lymph, the period of appearance of the areola, its tint, and finally the compact texture of the scab, as they were in the first year of vaccination; and to the best of my knowledge, the matter from which they were derived was that taken from a cow about sixteen years ago." This passage occurs in a letter which Jenner wrote to Mr. Moore in 1816, at a time when the belief in the degeneracy of vaccine lymph, when transmitted through the human system, was already gaining ground. Dr. Seaton, in his recent work on vaccination, defends Jenner's opinion, and supports it by some well-authenticated statistics. But the balance of evidence, gathered from more numerous facts and observations, inclines to an opposite view, so that at the present time there are few who doubt the progressive deterioration of humanized vaccine virus. Even without these data, and the additional argument derived from the non-identity of smallpox and cowpox, there are certain other considerations tending to the same conclusion. It must not be forgotten that the most reliable immunity from the contagion of variola is that of having already undergone the disease, which admits only of the one explanation: that the consequent general disturbance of the whole system, and the extent and number of the characteristic eruptions, exhausts in the completest manner the susceptibility to the influence of a fresh attack. If artificial inoculation of smallpox produces, as a general rule, a much milder

form of the disease, and according to experience affords less protection than a previous variolous attack, taken in the natural way, how much less must be the immunity acquired by the vaccinous disease, which is an exanthema not natural to man. On the assumption that this reasoning is correct, it has been recommended to increase the number of punctures for the purpose of saturating the system with the vaccine lymph more fully, and thus to impart a more certain protective power. This supposition has been strengthened by the recorded experience of Dr. Hervieux, who gave an account of a smallpox epidemic which broke out in Paris in 1866. He found in his wards of the Hospital Cochin, that all those who were taken with the smallpox had only one or two vaccine cicatrices. But Marson had long before this made a similar observation, on finding that the immunity from smallpox is in direct proportion to the number of vesicles raised. Dr. Ballard, in his prize essay, goes so far as to maintain that vaccine virus deteriorates by successive generations, even when the utmost care is taken in the selection of the vaccinifer, and in using lymph from pocks of the proper age. Among the numerous proofs which may be cited in confirmation of this assertion it is only necessary to select the result of the trials which have been made with the Passy lymph. Dr. Bousquet undertook a number of comparative experiments with the view of testing the several qualities of Passy lymph, which is only two removes from the cow, and the lymph in use at the French Academy, which is of a much further remove. The fact was thus ascertained, that vaccination by the Passy lymph produced frequent enlargement of the axillary glands, a more extensive and more phlegmonous areola, and a more frequent occurrence of secondary eruption—appearances which are never observed to follow vaccination from the usual lymph stock. Additional corroboration of the degeneracy of vaccine lymph by trans-

mission, was obtained by Steinbrenner, who compared the effects of Passy lymph, after it had been in use for four years, with the appearance observed after vaccination by new lymph.

The experience derived from revaccination is another proof pointing in the same direction. Revaccination began to be practiced in the Prussian army in 1833, when 33 per cent. of the vaccinated again took the disease. This statistic furnishes certainly a very nice test, although some deduction must be made, for obvious reasons, from this heavy percentage.

Too much weight, however, must not be allowed to the mere fact that humanized vaccine lymph does not retain its protective power by long transmission. The remark of Chomel is well known—"we cannot fairly exact more from vaccination than from smallpox itself." I was never more strongly impressed with the truth of this remark than during an epidemic of smallpox, which in 1857 visited the eastern section of this city. Among a large number of cases which I then attended, there was one, a middle-aged German mechanic, with whom I had been well acquainted, and whose face bore the unmistakable marks of a previous attack of smallpox. This man again underwent a regular attack of discreet-variola, and nearly succumbed to an intercurrent pneumonia. Still, cases of this kind are exceedingly rare, whilst post-vaccinal cases of smallpox at the present time are quite frequent. To whatever cause may be principally ascribed the renewed susceptibility to the contagion of smallpox during an epidemic of this disease, which a certain proportion of the vaccinated population evidently manifests, some share must be assigned to the diminished protective power of vaccine lymph that has passed through a number of generations. I shall again refer to this subject when speaking of revaccination.

The question whether vaccination may become the source

of propagating dangerous diseases, and especially syphilis, has of late been very ably handled, and as every physician is supposed to be familiar with all its bearings, I shall not dwell on it as fully as the seriousness of the charge deserves. Nor is it necessary to take notice of the pathetic language of self-constituted philanthrophists, who welcomed the momentary indicision which this question has caused within the ranks of the profession. It is much to be regretted that its discussion has not been carried on in the manner that all subjects capable of scientific treatment ought to be considered.

A respectful hearing is due to the men who are not unprepared to give some good reasons for their objections to indiscriminate vaccination. There is some excuse for the consternation produced when it was first announced that an operation, hitherto universally believed to be of the simplest nature and devoid of the least danger, caused in a number of instances the most disastrous consequences. It will not do to sneer down facts like these, which are as well sustained as any other facts in medical experience, nor is it philosophical to ignore their importance, because they are witnessed so rarely and are confessedly mere exceptions.

In order to clear this controversy of certain fallacies that may interlope, it is, perhaps, best to dispose first of those cases of alleged vaccino-syphilitic inoculations, which cannot stand the test of a critical examination. All the reported instances of this kind witnessed in England, France and Germany, bear either the character of faulty observation or hasty conclusions. Too little attention was paid to the antecedent condition of the patients who are said to have been infected by vaccinifers tainted with constitutional diseases, and not unfrequently eruptions of a suspicious character were referred to the effects of vaccintion, but which turned out to be simple and harmless specimens of skin diseases. Another source of error is the development of

secondary symptoms in latent constitutional syphilis, which any other cause besides that of vaccination may excite into activity. The appearance of constitutional syphilis, in a vaccinated child, is invariably the consequence of the aroused latency of this disease. Hence it may be laid down as a general rule, that whenever the vaccinator shall happen to be accused by parents of having infected their children with syphilis through the introduction of the vaccine virus, it is the parent and not the vaccinator who is at fault, and the less fuss the accusing parties make about it, the better it is for their reputation.

The matter wears, however, a more serious aspect in the instances of infection directly derived from the specific secretions of constitutional and congenital syphilis. Dr. Kaser, a member of the Austrian Diet, publicly stated at a recent session of this legislative body, that the lymph stock of the Vienna Foundling Hospital is a fruitful source of transmitting syphilis and scrofula. A member of the medical staff of this institution expressed his conviction, in a late number of the "Deutsche Klinik," that whoever procures a drop of vaccine lymph from that hospital may be sure that the virus was taken from the pustule of a child whose mother had syphilis during her pregnancy. It has for a long time been an open question, whether constitutional syphilis is inoculable.

At the present time few will deny it, but all are agreed that the infection from congenital syphilitic lesions is far more prompt and virulent than that derived from secondary syphilitic products. Dr. Ballard quotes the authority of both Rollet and Diday, with whom he coincides, that syphilis has in many instances been introduced into a limited community by a syphilitic nurse-child, where it spread like an epidemic. The imparted disease always appears in the form of a primary chancre in the place where the matter of contagion from the secondary lesion has been applied. This

is the test which distinguishes the infection arising from secondary syphilis, for constitutional syphilis, as already mentioned, never appears in the form of chancre.

One more point ought to be noticed in this connection, on which opinions greatly differed, but which may now be considered as finally settled. This refers to the inoculability of syphilitic blood. Dr. Viennois, in his work on secondary inoculation, mentions cases in which both diseases, vaccinia and syphilis, were transmitted by the same inoculation from a subject who had constitutional syphilis, and ascribed it to the circumstance that the vaccinator had introduced some of the blood from the infected person. This mooted point among vaccinographers was the cause of much discussion and fruitless speculation until Professor Pelpizzari irrefutably proved, by well conducted and unimpeachable experiments, that the inoculation of syphilitic blood does, in some instances, impart syphilis.

Having thus eliminated all the spurious instances of reputed vaccino-syphilitic inoculation, and pointed out the conditions which, according to experience, favor the occurence of this accident, there yet remains the consideration of the extraordinary cases of vaccinal syphilis known as the Rivalta, the Lapara, the Auvay and Bergame series. A few remarks in reference to the dispute which these cases have caused, and with which the profession is familiar, will suffice for the present.

The whole of these series of cases are defective in the evidence of being truly instances of vaccino-syphilitic disease, but, judged by the usual standard of medical evidence, they deserve as great a degree of credibility as the majority of clinical observations, which rarely amount to absolute certainty. This can especially be affirmed of the celebrated Rivalta series, for even the most reckless skepticism cannot explain away some of the facts which render it of the highest probability that these cases were genuine specimens of

vaccinal syphilis. Now what are these facts? A child, seven months old, named Chiabrera, residing with his parents at Rivalta, was vaccinated by a surgeon with lymph, which he had procured at Acqui. The parents of this child at the time of vaccination were not affected with syphilis, nor was this disease known to be prevalent at Rivalta. It was, however, ascertained that the child drew the breast of a nurse who had syphilis. The vaccine visicle pursued its regular course, and on the tenth day forty-six children were vaccinated from Chiabrera. Thirty-nine of these children became affected with syphilis, which showed itself on the average of twenty days after the vaccination. One of these children, named Manzone, aged six months, was in the tenth day used as a second vaccinifer, from which seventeen other children were vaccinated, seven of whom took syphilis. In all these cases the point of the puncture became the seat of ulceration, followed by glandular enlargement, mucous tubercles, cutaneous eruptions, &c., &c., which in a few instances proved fatal. The commission sent by the Government to examine these cases, about five months after their occurrence, found the nipples of the mother of Chiabrera affected with primary chancre, and the child presented symptoms of secondary syphilis. The contagion had then already spread among a number of mothers, nurses and children, who in a similar manner had become syphilised.

None of the objections on the score of careless observation, and erroneous conclusions, can hold their ground in the presence of this record of facts. This Rivalta series of cases was evidently not one of those rare instances of syphilitic epidemics whose source of contamination is unaccountable—for the primary chancre invariably succeeded the vaccine pustule, and was followed by the usual symptoms of secondary syphilis. It makes no difference whether it be assumed, that Chiabrera was constitutionally affected with this disease before vaccination, or that impure lymph

was used by the vaccinator, or that some syphilitic blo
was taken up by the lancet. All this cannot overcome th
force of the argument, that at least in the second vacci
ifer, Manzone, the syphilitic poison was present, or devel-
oped itself in the seat of a genuine Jenerian vesicle. The
doubt which may arise regarding the latter proposition is
best answered by the pertinent remark of Prof. Laycock.
He says: "Our knowledge of morbid poisons is too imper-
fect to speak positively as to what may happen, or what
may be expected 'reasonably,' or not."

Among a number of eminent authorities, who have expressed their total disbelief in the occurrence of vaccino-syphilitic inoculation, Dr. Anstie is, perhaps, the most emphatic in his denial. Like all those who agree with him, his conviction is based on the inference derived from a formidable and almost overwhelming array of facts, which seem to be indisputable. Not satisfied with occupying this strong position, he calls to his aid the formal principles of induction, by which he tries to convict his opponents of adhering to an absurdity. He is so thoroughly convinced of the unquestionable nature of his premises, which no adverse argument can overturn, that he feels himself justified in promoting the conclusion he draws from them to the rank of a completed generalization.

Dr. Anstie expresses his surprise that this argument has escaped the attention of others. It is certainly a new thing in scientific inquiry to make short work of divergent views, by characterizing conflicting experiments and observations to be false in statement, and utterly inadmissible as evidences. The impossibility of vaccinal syphilis, according to Dr. Anstie, is such a universal truth, that nothing less than a miracle can change it. All that can be reasonably inferred, however, from the evidence of the case as far as established, is this, that vaccino-syphilitic inoculation is very rarely observed, just possible, easily evaded by ordi-

nary precaution, and what is of the utmost importance, and very consoling, it can be entirely prevented by resorting to lymph stock free from any contamination of syphilitic poison.

Very little need be said of the advantages of retro-vaccination, since Depaul has rendered it certain that by vaccinating successive generations of heifers a plentiful supply of cowpox matter can be constantly obtained. This safe and ready method of procuring the proper virus does away with the expediency of variolating animals for a similar purpose, and makes it inexcusable for any community to neglect this advantage. Animal vaccination, as a national method of propagating vaccine virus, is now fully established in Naples, Berlin, Munich, Brussels and St. Petersburg. In our own country this method has been repeatedly recommended by the profession, but thus far without any practical results, which is the more surprising since the vaccine disease of cattle is not so rare as is generally supposed; nor is there any lack of public spirited men among us to make the attempt, if properly encouraged. Perhaps this tardiness is somewhat owing to the example set by our English brethren, who may be pardoned for their exclusive faith in humanized lymph, as it shows a respect for the memory of their illustrious countryman.

On the propriety of revaccination there is hardly a dissenting voice, especially since the fact has been established, that revaccination succeeds now more frequently than formerly. It is now over twenty-five years since Dr. Gregory, who was for a long time at the head of the London Smallpox Hospital, gave the result of his experience to the effect that, vaccination banishes smallpox up to puberty, but that beyond that age the vaccinated are liable to this disease. The progressive diminution of the protective influence of vaccination admits of an easy explanation. Persons just beyond this particular period of life are known

to show an increased liability of being infected by small-pox, and more or less acquire again the condition which favors the development of this disease. It has therefore been proposed to perform vaccination at about the age of sixteen—an advice which ought to be generally followed.

SOME FACTS CONCERNING THE THERAPEUTICAL ACTION OF ELECTRO-MAGNETISM.

BY HARVEY L. BYRD, M. D.,

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IN obedience to the behest of partial friends, and to comply also, to some extent, with the requirements of utilitarianism, the following observations on the use of electro-magnetism are offered for publication in the "Baltimore Medical Journal."

Convinced the subject is not receiving the amount of attention among physicians that its importance demands, I am induced to republish such personal observations, and add some subsequent facts in regard to it, which have stood the test of several years' experience, in order the more fully to assure such as may be skeptical that no agent of our vast therapeutical armamentarium is more reliable than it is, when properly and judiciously employed. It will be seen from an extract of an article below copied, that my attention was directed to this important agent in the management of eclampsic, and other forms of convulsive movements, as early as the year 1848—my first article on the subject having appeared in the "Charleston Medical Journal" of that year. And that the subject attracted the attention of several distinguished members of the profession in this country and in Europe may be found in the contemporaneous medical literature of the period:

"Harriet, aged 12 years, came under my treatment (in Georgetown, S. C.) on the afternoon of April 5th, 1848.

I found her insensible, with clenched hands and jaws; pulse 85, soft and compressible; skin normal; head cool; respiration (except in the convulsive movements) almost natural; occasional moaning. Such paroxysms occurred at intervals of a few minutes for three hours, after which she sank into a sound sleep, from which she awoke at 9 A. M., feeling, as she expressed herself, 'well.'

"Three weeks previous to my seeing her she was attacked by the first paroxysm, and up to the date of the above named visit they had recurred regularly *every afternoon*, about 4 o'clock, lasting each time from three to four hours. During the mornings she attended to her usual occupation (that of nurse to one of her master's children) entirely free from any disturbance whatever in her nervous system. She had been bled freely, purged, and blistered on the back of the neck and between the shoulders. I carefully examined her head, and found it well formed; and no portion of the spinal column offered any symptom showing a deviation from a perfectly normal or healthy condition.

"She had never received any injury either of the head or spine, and up to the appearance of the first paroxysm had enjoyed excellent health. Nor was any thing developed during our subsequent investigations and treatment calculated to account for the fits. From the 5th to the 10th of April she was treated with purgatives, composed in part of mercurials and quinine, in conjunction with morphia, valerian, assafœtida, turpentine, etc., with a view to antiperiodic and sedative action, taking those articles in full doses, without the slightest appreciable benefit. When visiting her with Dr. T. J. Dozier, on the evening of the 10th, I suggested the use of electro-magnetism. He readily endorsed the remedy, and a current of moderate force was passed through the spinal column, from the occiput to the sacrum. The battery was applied at 4½ P. M., after she had been in a paroxysm about half an hour. A violent convulsive movement immediately occurred, by which she escaped

from our assistants. We soon, however, had her held securely, and repeated the application. In four minutes we had the satisfaction of seeing the muscles relax, and in seven minutes she exclaimed: '*You are burning my back.*' She had never before spoken a single word during the paroxysms, which, as above stated, lasted from three to four hours. From the time of the above quoted exclamation she never had the slightest return of the paroxysms. The application was repeated on the following and three succeeding days, at 4 P. M."

This case was quoted in Rankin's (London) "Half-Yearly Abstract" of the next year, and the following editorial remarks made in reference thereto, viz:

"This is evidently an instance of hysteria, depending probably on the attempt to establish the menstrual *nisus*, and, as such, was precisely a case in which the magnetism offers peculiar advantages. It is instructive, also, as exhibiting the injurious treatment of the routine practitioner to which she had been a victim previously to her being sent to Dr. Byrd."

The following extract is from an article published by us in the "Charleston Medical Journal" for 1854:

"During the past autumn I was requested to visit a negro man during the temporary absence of Dr. James B. Read, the attending physician. On my arrival, at half-past one o'clock P. M., I found the patient in the last or collapsed stage of cholera. Dr. Read had kindly mentioned this case to me in the morning, and given me an account of his treatment, and thought him then doing well. I directed the vigorous use of stimulating frictions to the extremities, and counter-irritants over the entire spinal column, as far as it was practical to use them, also the free use of stimulants internally, and left for my office to prepare a battery, intending to try the effects of electro-magnetism, should his condition seem to justify a resort to it, on my return.

"At two o'clock P. M., accompanied by my partner, Dr. E. H. Martin, I visited the patient again.

"His condition was found to be quite as alarming as when I left. His face was hippocratic, speech gone, skin cold and shrivelled, pulse almost wholly imperceptible at any point, respirations, five per minute; eyes turned in the sockets, exposing the whites alone between the partially closed lids; in a word, we regarded him as being *in articulo mortis*. So thoroughly were we persuaded that such was his condition, and that any interference on our part would only tend to lessen the few moments he had of life, that we declined to apply the battery. After stating our fears to his wife, she urged that we should make the attempt, as it could could certainly do him no hurt. Accordingly we arranged the poles of an ordinary Sherwood battery over the occiput and sacrum, passing a pretty strong current. In a minute his eyes resumed their natural position, and his pulse rose in volume and frequency.

"Changing the negative pole from the sacrum to the epigastrium, the respiration immediately improved, and became easy and regular in five minutes. In ten minutes he sat up, and complained of the severity of the current. He expressed himself relieved in every respect, and began to congratulate himself on his delivery from death, to which he had abandoned himself some hours before. The application was continued for an hour with a gradually weakened current, during which he partook of arrow root once or twice with relish. On leaving, he was directed brandy in moderate doses should he complain of weakness. Several hours after, his wife thought that 'a small quantity of brandy would do him no harm,' and accordingly gave him a portion, but soon found it necessary to repeat it again with a hope of restoring his rapidly sinking powers."

I have often seen brandy and other alcoholic stimulants produce similar results in cases of cholera, where their use

seemed to be imperiously demanded by the rapidly declining vital forces.

In 1860 I had the honor of publishing, in the "Oglethorpe Medical and Surgical Journal," of Savannah, several cases in which this agent was used with complete success, after various other plans of treatment had failed to afford relief to my patients; and among other important ones were its "*Influence upon the uterus in promoting its secretions, and its contractions when they are wanting or feeble*," "*As an Aphrodisiac*," "*In uterine homorrhage*," etc., etc. Since the publication of the above-mentioned articles, I have enjoyed the pleasure of witnessing its beneficial (I had almost said magical) powers repeated many times in most of those diseases, and also in a large number of other cases where the usual remedies had utterly failed in affording relief. Among these, may be mentioned its action in that most dangerous condition known as *inertia of the uterus*. I have known it act promptly, and thereby save the life of the patient, when all other known remedies had failed to cause proper contractions of the organ. My experience with it during the late civil war, in counteracting the dangerous condition which often attends the use of chloroform in surgical practice, induces me to regard it almost as a specific in such cases. I have seen it act most happily in two cases of opium poisoning, after emetics, the stomach pump, and belladonna had failed to relieve the patients. My notes and memory combined would enable me to write voluminously of its unrivalled merits, but the field has been so thoroughly occupied by other and abler pens that I forbear saying more at present.

TRAUMATIC TETANUS.—RECOVERY UNDER THE USE OF TINCT. GELSEMINUM.

BY THOMAS SMITH, M. D., SAVANNAH, GA.

MR. F. CROSBY, Central Railroad train hand, had his right hand caught between cars, bruising and abrading the 3d phalanx of the first finger; also the 3d phalanx of the second finger was badly crushed, fracturing the bone through the joint, causing dislocation. This accident occurred December 22d, 1868. On the morning of the 23d, I saw him in my office. After slight examination of the injured parts (for he was so timid he would not submit to a more thorough one), I advised amputation of the fractured bone of the second finger, urging it upon the grounds of removing the danger of tetanus, as also it would give him a more useful finger; because, granting he escaped tetanus, he would have anchylosis of the fractured joint. This he refused. I told him I could do nothing for him; however, I gave him a carbolic acid ointment, which he continued to use for some days. Now and then he came into my office; each time I urged him to submit to the amputation, still he refused. Again he came into my office on the morning of July 10th, 1869, when he complained of slight stiffness of the jaws, remarking, however, he had no pain. I told him he had, as I predicted, lockjaw. I called Dr. Read in consultation January 13th. He pronounced at once lockjaw, saying amputation at this late hour might possibly be of service. Crosby still refused. However, the next day, Thursday, January 14th, having Drs. Duncan and Myers in consultation, we, with our united persuasion, got him to consent to amputation. He was immediately put under the influence of chloroform. I now took off the second finger at the second joint, and put him at once under treatment, commencing at 12 M., January 14th, with Tr. Gelseminum, 3 *ss.* every hour. At the end of six hours slight giddiness was the only effect shown from the medicine.

At 6 P. M., same day, I increased it to ʒ i. every hour during the night, provided he was awake. At this time his pulse was 100, all functions normal, jaws so locked, that the interval between the upper and lower insicors was scarcely half an inch.

January 15th, 10 A. M. Had a pretty fair night; only took the tincture four times; he is still giddy; pulse 100; good strength; bowels regular, and been so since the accident. Told his attendants the importance of giving him the most nourishing food; ordered Tr. Gelseminum, ʒ i. every hour, as before; he has not been strictly confined to his bed.

January 15th, 5 P. M. Still quite giddy; the jaws very slightly relaxed; pulse the same; continued the Tr. Gelseminum dr. i. throughout the night.

January 16th, 10 A. M. Slept tolerably well; still giddy; pupils slightly dilated; continued Tr. Gelseminum in double doses—takes dr. ii. every hour. 5 P. M., found him very giddy; complaining of not seeing quite as well as before; he also remarked that he attempted during the day to walk in the yard and fell, because of the giddiness, and the stiffness of his knees, which latter trouble showed itself January 13th. I at once ordered him to keep his room; ordered the tincture to be reduced to dr. i. every hour during the night; jaws about the same.

January 17th, 10 A. M. Slept unusually well; otherwise the same, except the jaws a little more relaxed—say three-fourths of an inch: ordered a resumption of the dr. ii. doses every hour. Now I found the abdominal muscles quite rigid. 5 P. M.—he is cheerful, as he has been throughout the attack.

January 18th, 11 A. M. Slept well last night; jaws about the same; abdominal muscles not so rigid; continued the tincture, dr. ii every hour. 5 P. M.—complains of almost total blindness, not seeing five feet before him; jaws

still relaxed; ordered the Gelseminum reduced to dr. i. every hour, (as I do not like to continue the large dose during the night, when I cannot watch it).

January 19th, 10 A. M. Slept well last night; still giddy; pulse 100; jaws no more relaxed; abdominal muscles not so rigid; continued Tr. Gelseminum, dr. ii. every hour; appetite good. 5 P. M.—So giddy he cannot sit up for more than a minute; can scarcely see any thing; jaws relaxed about same extent; pupils well dilated; ordered the tincture reduced to dr. i. every hour; pulse 100.

January 20th, 11 A. M. Slept better than since the accident; pulse 96; appetite unusually good; jaws open three-fourths of an inch; still giddy, and unable to see well; abdominal muscles partially relaxed; pupils well dilated; increase the tincture to dr. ii. every hour. 5½ P. M.—very giddy; almost blind; pulse 88; jaws more relaxed; abdominal muscles entirely relaxed; reduced Tr. to dr. i. during the night.

January 21st, 11 A. M. Pulse 88; pupils fully dilated; jaws and abdomen the same.

January 22d, 11 A. M. Slept remarkably well; pulse 84; pupils same as 21st. 5½ P. M.—pulse 90; pupils well dilated; jaws relaxed to one inch.

January 23d, 11 A. M. Pulse 96; pupils same; jaws and abdomen same. 5 P. M.—pulse 94; otherwise the same; been taking the Tr. Gelseminum in full doses all the time. Up to this date he has taken oz. XVI Tr. Gelseminum—in other words, the enormous quantity of *one pint.*

January 24, 1 P. M. Pulse 94; pupils fully dilated; jaws more relaxed, to 1⅛ inches; masticates his food very well; abdominal muscles and knee-joints better relaxed, enabling him to walk with more ease. 5½ P. M.—same as in the morning.

January 25th, 12 M. Pulse 90; jaws relaxed still more, extent 1¼ inches; otherwise the same.

January 26th, 12 M. Same as yesterday. 5 P. M.—same as in the morning; diminished the dose of the tincture to dr. i. every two hours.

January 27th, 12 M. No change since 26th, except profuse perspiration during past twenty-four hours; more than since the accident.

January 29th, 11 A. M. Pupils the same; jaws so much better that he can tear meat from the bone; still perspiring; ordered the tincture, dr. i. every three hours.

January 30th. Jaws well relaxed; pupils natural; pulse 90; knees more relaxed.

February 1st, 12 M. Jaws relaxed to 1½ inches, (which is the average, as found from examining many mouths); has the ginglymoid and lateral motions free; discontinued the Tr. Gelseminum. Taken up to February 1st, oz. XX.

I saw Mr. Crosby about May the 1st; he has entirely recovered.

The above case is interesting from the unheard-of large doses, and quantity that the subject took in the course of treatment, without showing at any time poisonous effects, merely the relaxing powers of the medicine.

SELECTED ARTICLES.

CHRONIC RHEUMATISM AND ITS COUNTERFEITS.

BY J. MILNER FOTHERGILL, M. D.
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THE name rheumatism—or, as it is now more precisely termed, chronic rheumatism—has been used as a generic term for persistent pains, unaccompanied by constitutional disturbance, irrespective of their causation, and has covered an unknown amount of carelessness and ignorance; while, as a verbal placebo, it has often been used to justify a do-nothing treatment, sometimes very reprehensible. This is less true, however, of the present time than of the past; and now an apyrexial condition, accompanied by varying amount of pain, is found to be the result of many other causes as well as the poison of rheumatism. It may be well to state at once what that poison is, assuming that rheumatism, or what we call rheumatism, is dependent on an altered condition of the blood; in fact, is the external expression of a material in the blood, either morbid, or normal in excess. Lactic acid is this material in the belief of most observers, but not of all. One thing, however, seems universally admitted, namely, that it is an acid. Lactic acid is a product of assimilation, and is the normal result of the digestion of amylaceous or saccharine compounds, each molecule of grape-sugar (C_{12} H_{12} O_{12}), being broken up into two molecules of lactic acid (2 C_6 H_6 O_6); and it has been further stated that the oxidation of lactic acid is the true form of hydro-carbonaceous combustion. This goes on through the agency of the soda in the blood, and is imitated in the reduction of a salt of soda and a vegetable acid, of whatever kind, to a carbonate, in which form it is eliminated by the kidney. "A combustion of an acetate or tartrate, consuming oxygen and producing carbonic acid, is, in all probability, strictly analogous to a natural burning of lactate of soda, always going on

in the blood for the maintenance of the animal heat."* This theory is ingenious, but will require further corroboration before it is universally accepted: it seems very probable at any rate. This, however, is certain, that lactic acid is a normal product of the body, and that rheumatism is usually supposed to be the result of its presence in excess. Lactic acid is found in sweat, and the natural emunctory of its excess is the skin. Excess of lactic acid in the blood may arise in two ways—one from excess of saccharine matter undergoing fermentative change, and overrunning the powers of excretion—or from normal production with defective elimination. Both forms are commonly seen; the first, however, more in connection with acute, the latter with chronic, rheumatism. This *materies morbi* seems to have an affinity for the fibro-serous textures, and thus, in addition to its partiality for the joints, fixes on the fibro-serous textures of the heart; and from the changes thus produced by its action, do we have the great majority of our diseased and altered valves. It is not, however, confined to the fibro-serous textures, and may be muscular, neuralgic, periosteal, or sclerotic. Rheumatism, in its causation, has some curious relationships. It has a singular and most inexplicable connexion with the urethra. Acton says, "It would almost appear that rheumatism enters the system by the urethra. Rheumatism is produced by the passage of sounds and lithotriptic instruments as well as by the application of foreign matters. Urethral inflammation only is requisite to excite rheumatism in those who are hereditarily disposed to it. In gonorrhœal rheumatism, arrest of the discharge is often the readiest cure for it, though at other times it seems to follow the arrest of the discharge." Of this curious connexion no explanation as yet has been given. Another curious connexion exists between rheumatism and atmospheric changes; the joints of the rheumatic are often as certain indications of coming changes in the weather as barometer or aneroid. Some, in fact, only suffer from pain at these periods of change. Rheumatism is an ailment connected with families, and a predisposition may be handed down for generations. Rheumatism is often a troublesome inheritance, and, in those so hereditarily predisposed, slight causes are sufficient to excite a very persistent attack. It is commonly strong and otherwise healthy

* Headland's Action of Remedies, 4th edition, p. 135.

milies with which rheumatism is connected. Mitchell of Philadelphia, and after him Day in England, has advanced the idea that acute rheumatism is, in its origin, cerebro-spinal, and allied to cerebro-spinal meningitis; this view seems untenable, as the one is rarely fatal, the other is commonly so. Rheumatism seems rather to be associated with the organic than the cerebro-spinal nervous system. The symptoms of chronic rheumatism are such as might be expected from a blood-poison, and its manifestations are various. "The affection may show itself in the joints, giving rise to stiffness, a dull aching, and pain produced by motion, but without heat, obvious swelling, tenderness, febrile excitement or marked sweating; or it may implicate the muscles in various parts of the body, occasioning stiffness as well as pain when moved; or it attacks both joints and muscles, or is seated chiefly in the sheaths of the nerves, leading to what is called neuralgic rheumatism; of which, for instance, sciatica often affords a striking instance."—(Da Costa.) One property it has of making rapid metastases, of suddenly quitting one part to manifest itself in another; on other occasions it lingers round one part with great pertinacity. Whatever form it assumes, so far as my experience goes, rheumatism is always accompanied by the presence of an acid, both in the secretions and excretions; and of this condition the readiest evidence is furnished by the saliva. More readily accessible, and of not normally so decidedly acid reaction as the urine, I have been led to prefer it for testing purposes. Its normal reaction is faintly acid, but frequently it is neutral, and is always so during the alkaline tide of digestion of Roberts. If the saliva gives an acid reaction, as shown by the reddening of litmus paper, at all decided, especially during digestion, the presence of an acid in excess may be at once inferred. As to whether that acid is lactic or uric, it cannot furnish evidence. When the reaction is not acid, the complaint is essentially neuralgic and not rheumatic, and a clue is at once furnished to the more exact treatment. Where there is decided acidity, relief is always afforded by alkalies. Pain is often the prayer of a nerve for healthy blood (Romberg); and, when so occasioned, is most readily and certainly treated by removal of that cause, where practicable. An acid condition of the system is often seen in growing children, and is often termed rheumatism; this is the "growing fever" of Lugol. In some children, and indeed adults, who suffer from a deficient

power of cell-formation—*i. e.*, the strumous—the presence of an acid is usual; it is, however, generally uric acid, and is shown by calculus, gravel, nephria, acid sweats and secretions, injured teeth from the constant presence of an acid acting on the carbonate of lime, sour breath, etc.; and this explains the efficacy of potash in these conditions. Potash acts as a veritable hæmatic and blood restorative, by aiding in the elimination of the uric acid, and thus producing a more healthy blood. "Thus the uric acid which constitutes the urinary excretion of birds, whose habits are active and temperature high, and whose blood is highly oxygenated, cannot arise from insufficient supply of oxygen, but must depend upon some peculiarity in the tissues; so also in man, uric acid may be the effect of defective nutrition or primary assimilation, and not merely of imperfect metamorphosis or oxidation. The clinical history of the so-called uric acid diathesis supports this view, and shows that the remedy, in many cases, must be sought, not in the promotion of oxidation, but in modification of the nutritive processes."—(Broadbent.) In this condition potash, by relieving the blood of its *materies morbi*, and thus improving its quality, allows of a more perfect tissue-nutrition in which the blood-glands share, and are thus enabled to perform a more perfect chylous elaboration. Potash is found in the muscles, soda in the blood; potash is more associated with tissue-metamorphosis, soda with respiratory change. Potash is the remedy in excess of uric acid, soda is just as useful with lactic acid. Urate of soda (chalkstones) is insoluble; urate of potash is a readily soluble salt. Pain, general or local, is the usual accompaniment of deficient or defective blood. Whenever the blood is altered from its normal condition we have pain; thus in syphilis, ague, lithiasis, rheumatism, anæmia, etc., we have local manifestations of a general condition. Why, however, a blood-poison should manifest itself in a nerve or group of nerves, as is the case in rheumatic and other neuralgiæ—why the general condition should make itself apparent in one locality, or inversely—how it happens that one portion of the organism alone affords manifestations of a general systemic blood-poison,—is explicable enough in the case of injury or excessive action; but it is not confined to these localities, and may show itself in a manner as yet inexplicable, This is deserving of attention, and, if explained, may afford a clue to a deeper insight into the *modus operandi* of morbid action in its

ly stages than as yet exists. We know, from experience, that pain resulting from these causes—the external or outward visi- sign—is relieved by mercury, iodide of potassium, quinine, ash, iron, arsenic, etc., according to the cause; and that in se conditions these drugs are, one and all of them, true hæmat- —*i.e.*, they restore the blood to its normal condition.

A peculiarity of rheumatism is that, when localized, it is fre- ently relieved by motion; the rheumatic whose first movements productive of agony, will get along pretty comfortably after he been moving some time. This is well known in horses the jects of "jack spavin," which is really a rheumatic exostosis. her rheumatics can work all day in comparative ease, but toss arly all night instead of sleeping. This is often the case with hands and arms of washerwomen; it may, however, be made a estion whether this is always rheumatism or not; for it may be en a form of myalgia—but of that anon. When thus localized, affects certain parts, and there it sticks; in time changes of struc- e go on, and the sufferer, in addition, becomes crippled. This ange may occur variously—a bony exostosis may bind together o sections of a joint, and, though most usual in compound joints, y occur in the lumbar vertebræ;—it may lodge itself in the ten- ns, and produce contraction and deformity; or it may lodge in e sheathes of nerves till effusion takes place, and, by compression, oduce partial paralysis, as is often seen in sciatica. In this last ndition the loss of power, and with it loss of sensation, compli- tes the diagnosis with some pressure or lesion in the nerve high nearer the trunk. There is a great tendency for rheumatism to dge itself in parts that have been injured—as a dislocated joint, a uise or crush, or to linger round a pleuritic adhesion; and in cidents occurring to the congenital rheumatic, the painful conse- uences are often rather to be dreaded, and if possible averted, than e injury itself. As a blood disease it may show itself anywhere; may attach itself to one place and persistently remain; or it may t about without a fixed residence, and may simulate many other sorders—and it may be simulated in its turn. With local affec- ons it is often confounded, and too frequently persistent local ains, indicative of serious mischief, may be allowed to pass un- eeded as rheumatism. This is unfortunately the case, sometimes, ith ulceration of the articular cartilages, and with osteal and peri-

osteal affections; and when any doubt exists, great care should be taken to watch the nocturnal exacerbations, the shiverings, etc. In Langenbeck's "Archives," No. ix., is related a case of periostitis and osteo-myelitis of the femur, which was mistaken for rheumatism. The pain in the right shoulder, symptomatic of hepatic disease, and especially of an abscess approaching the serous surface of the liver, and the sympathetic pain down the left arm in some cases of heart disease, are often carelessly looked over, and their significance unheeded, by classing them as rheumatic. Intercostal rheumatism has included pleurisy, pleurodynia, broken ribs, herpes, neuralgia, the peculiar pain generally of the left side found in women, and so strangely connected with menorrhagia and leucorrhœa; the pain in either side, which is intimately connected with debility and anæmia; and again is confounded with that condition of pain and soreness of the muscles developed by overwork, and attended with both muscular and cutaneous hyperæsthesia, designated by Inman "myalgia." This condition of the interosseous muscles is probably often the real condition of the washerwomen's hands mentioned above. This pain, from stretching the white fibrous tissue, usually unyielding, is most agonizing, and was empirically applied by our forefathers in the rack and other methods of torture. But beyond all other pains, localized or otherwise, spontaneous or feigned, for simulation and dissimulation' is, unquestionably, lumbago. To say nothing of its being confounded with abdominal aneurism, intra-vertebral cancer, disease of the spinal cord, renal congestion, abscess, renal calculus, nephralgia, lumbo-abdominal neuralgia, sprains, etc.; it is often assumed to be present when the patient is really suffering from "weak back,"—*i. e.*, pain evoked in the muscular sense, and conveyed by the muscular nerves of sensation from the weight of the head and shoulders hanging on the erector spinæ. This state of over-tension is exquisitely painful, and is often quickly relieved by taking off that over-tension by the horizontal posture; it is intimately connected with growth,* and with hysteria from hyperæsthesia.† It is usually undistinguishable, locally, from congestion of the venous sinuses of the lumbar vertebræ, but the difference can sometimes be demonstrated by the treatment. For instance, the cure for lumbago, so fashionable a few years ago, by

* Hilton on Rest and Pain.

† Laycock, Ed. Med. Jour., vols. li. and liii.

croton-oil, was really a rapid unloading of the bowels and relief to the congestion, and was not productive of any good in genuine rheumatism. On this subject, Copland states that true rheumatic lumbago is not connected with affections of the lower limbs, as cramps, numbness, pricking or lancinating pains, etc., which follow on lumbar-venous congestion. Rheumatic sciatica has included structural lesions, neuritis, neuralgia, specific and non-specific; while rheumatism in the neighborhood of the anterior crural nerve is often really pain produced by the compression of the nerve by a load in the cæcum. Uterine rheumatism is often a misnomer for obstructive menorrhœa, and sometimes even for carcinoma. Rheumatic headache stands responsible for a deal of diagnostic carelessness, and has thus led to a great deal of direct and indirect mischief. Rheumatism, in fact, has been made a respectable cloak for everything that is painful, from orchitis to bruises.

Non-localized rheumatism is as liable to mistake nearly as its localized congener, and is confounded with general neuralgic hperæsthesia, hysteria, alcoholism, tertiary syphilis, lithiasis from granular kidneys, locomotor ataxy, etc. From hysteria it may be dstinguished by the general aspect of the case—hysteria occurring in young females, often of hyperæsthetic temperament, or of evident delicacy, who are rarely the subjects of true rheumatism. From neuralgia it cannot easily be discriminated always. In neuralgia, however, there is no acidity of the secretions, and some rational symptoms may assist to determine the question. Neuralgia is usually connected with the distribution of a nerve or group of nerves; there is, too, according to Trousseau, tenderness over the spinal process where the nerve emerges from the spinal canal and brought out by pressure; while Valliex advanced the theory that there were special "tender spots" over the distribution of the nerve. An intermediate form of rheumatic neuralgia is not uncommon—a disorder in which there may be both a rheumatic and a neuralgic element, and where the acidity is very slight—in fact, a species of hybrid requiring a treatment as composite as itself. Professor Leudet, of Rouen, has described a variety of chronic alcoholism, in which the predominant symptom is pain, which may vary in intensity, be deep-seated or superficial, and accompanied by anæsthesia or acinesis, cramp, and increased reflex movements in the lower limbs. Mr. Higginbotham, of Nottingham, has described

a similar condition under the name of alcoholic rheumatism, which used at one time to puzzle him greatly, but which, in time, he got to connect with alcoholic excess; and which, in fact, depended on it, being irremediable except by abstinence, and which has entirely disappeared on the sufferers becoming total abstainers. This affection, though necessitating a peculiar treatment in accordance with its cause, is a form of genuine rheumatism, as it is intimately associated with the use of fermented alcoholic liquors, where an acid is easily generated, and does not seem a concomitant on the use of distilled spirits, which not readily undergo acetous fermentation. Mr. Higginbotham says that, even where structural change has gone on, relief from suffering may be obtained by abstaining from the exciting cause.

Tertiary syphilis often presents itself for treatment under the guise of rheumatism, and may be either simple chronic, specific periostitis, or, from the cachexia, may be a form of true rheumatism —*i. e.*. that an undue formation or deficient excretion of lactic acid may result from the syphilitic cachexia. If a history be vouchsafed, a suitable and more or less specific treatment may be at once adopted with a good probability of success. But when a history is not forthcoming, then a resume of the symptoms alone will enable us to judge of the probability of a specific origin. Tertiary syphilitic rheumatism, however, evinces a decided partiality for the periosteum and shafts of the long bones, and is very generally accompanied by nodes, especially in the anterior surface of the tibia, which are almost pathognomonic. There is often, too, a more marked cachexia than is found along with non-specific rheumatism. The clavicle. humerus, and forearms are favorite seats of this form of rheumatism. As well as its favorite seats and accompanying nodes, there are evidences of skin and throat affections, a mutilated iris, etc., which will assist in forming a correct diagnosis.

Other pains, not in any way rheumatic, are not rarely confounded with it, and this is commonly the case with the pains of locomotor ataxy. Of three patients thus afflicted, under care at present,* two complain of "rheumatic pains" most bitterly. In these two the pains preceded any marked indications of the disease—in fact, were regarded as rheumatic pains until the other symptoms developed

* I am here speaking of my Westmoreland experience, when the paper was written.

themselves. The pains, however, are not those of rheumatism, and differ from its pains most markedly in the intense suddenness with which they come on. In one patient the pain comes on at times like an electric flash, bringing him to the ground at once; at other times the pains are fixed, often in the knees, and persist for hours. In the other two, the aching of the limbs preceded any other indication, and was as truly rheumatic as could be; in fact, the pains, perhaps, were rheumatic along with the ataxy. Now, however, the pains are evidently not rheumatic, and are closely allied to those manifestations of pain called "spinal irritation." In the third case, the disease was very well marked before any pain was complained of, and the pain has never been severe; but in place of paroxysms of pain there have been prolonged paroxysms of choreo-convulsive disorder of motility. These pains in locomotor ataxy, come on in severe pangs—"stabbing, boring, shooting like lightning, flitting from one place to another in a very erratic manner, and recurring in paroxysms lasting from a few minutes to many hours." Their suddenness is their especial characteristic, and should always put the medical observer on his guard to look out for the other indications, as loss of tactile sensibility, etc. These pains may be accompanied by a feeling of coldness, thus closely simulating some forms of rheumatism. The importance of them lies in the prognosis, as the pains of locomotor ataxy are not to be relieved by art, and the disease on which they depend is of the most intractable character. "It is evident that, when the nerve-roots are severed by disintegration of the posterior columns, the peripheral ends can no longer transmit impressions to the cord; but their central ends may still be connected with the gray substance of the cord, and may, therefore, convey to it those irritating impressions that are caused by the process of disintegration."—(Lockhart Clarke.) All treatment applied to the peripheral distribution of the nerves is useless, and experience has demonstrated that the only conceivable treatment—viz., of sedative to the receptive centres—is equally ineffective. The pathological explanation of the cause of the pains, and also of their intractableness, clearly explains the diminished sensibility and numbness in the limbs beyond the lesion. Trousseau regarded these pains as the most constant precursory phenomena of the disease. It is easily understood how the pains should precede the symptoms of loss of power or co-ordination or sensation, as it is induced by the

disintegrating action, before it can have gone far enough in the destruction of the fibres to be manifested in the want of conducting power, as well as why it should persist afterwards. To illustrate it by fracture of the spine: violent pains are felt above the paralyzed and non-sensitive parts, due to the inflammatory condition of the cord immediately above the compression, and marking the borderland between perfect nervous conduction and total abolition of it. When, then, rheumatic pains of a sudden or instantaneous character are complained of, great pains should be taken to make a thorough examination for the other early symptoms of ataxy.

Still more closely allied to chronic rheumatism in character, causation, and chronicity, are the pains accompanying granular or contracting kidney. This form of renal disease is essentially chronic, and carries with it a train of symptoms which as yet are not clearly understood, especially as regards the symptom chiefly under consideration here—viz., pain. It is not to be distinguished from rheumatism by any casual observation, and perhaps sometimes will escape the most careful scrutiny. Immediately associated with the retention of uric acid, thus causing an acid reaction of the secretions and excretions—a blood-poison, thus manifesting itself any where—its resemblance to chronic rheumatism is nearly complete. No absolute distinction can be positively drawn except from examination of the urine; but in this form of renal disease albumen is often absent for long periods together, and thus the readiest witness is wanting. The urine varies greatly, however, in quantity, and when great in quantity is usually of low specific gravity, and contains granular casts, which, however, are often few in number and not easily found. When found they settle the question as to the presence of renal disease. An absolute diagnosis is, however, not always attainable. We are then thrown back upon the rational symptoms, and the distinguishing characteristics may be found to run somewhat in the following direction:—Rheumatism is associated with the fibro-serous textures; in lithiasis the poison has more affinity for the true serous surfaces, and is often the cause of pleurisy and periotonitis. Lithiasis more affects the muscles, and rheumatism rather the large joints. Diarrhœa, vomiting, and other affections of the mucous membranes, as bronchitis, accompany lithiasis; and in these it differs from rheumatism. Lithiasis is accompanied by headache, especially of the

ex (persistent and recurring vertical headache is almost patho-
nonic of lithiasis), or the pain may be frontal. There is often,
a want of power to collect the ideas so as to interfere somewhat
the patient's pursuits, if of an intellectual kind. In lithiasis
e is a wakefulness at night, not entirely due to the pain, while
uently there is cardiac depression from the blood-poison, closely
d to that caused by the biliary acids when circulating in excess,
not characterized by such severe palpitation as occurs in bilious-
. In this it differs from rheumatism. There are, too, in the
, manifestations of lithiasis; and the various pricking eruptions,
that irritable condition of the skin intimately connected with
rring erysipelas or erythema in elderly people, are part of its
lts. These patients are readily acted on by cold, and exposure
he face to a cold wind almost sets it in a blaze; and the cold,
alled, thus caught, is accompanied by an inflammatory swelling
he face,—in fact, renal dropsy of a passing character. Dr.
, in his Lectures, states the connexion between gout and
able ulcer, and I have known an irritable ulcer that resisted
tment for years yield in a few weeks to water-dressing, when
ash and colchicum were administered internally. Except
ler certain circumstances, it is allied to rheumatism again
its absence of constitutional disturbance, its persistency, and
connexion with atmospheric changes, especially of tempera-
e—to which change the sufferer from chronic renal disease is
st sensitive—and in the character of its pain. One patient,
om I saw in consultation, was regarded as rheumatic, such per-
sciatica and pain in the anterior crural nerve had he, though the
dical gentleman attendant had watched the urine, the specific
vity of which was sometimes as low as 1.005. There was, too,
ore profound cachexia than usually accompanies rheumatism;
l the result of the case pointed clearly to the poison being rather
c than lactic acid. That these two conditions of lithiasis and
onic rheumatism are intimately related, and often curiously
nded is certain; and so commonly is uric acid found in chronic
umatism (so-called)—see Copland's article on "Chronic Rheu-
tism,"—and so frequently may all the signs rational and physi-
of rheumatism go along with evidence of renal mischief, that it
y be practically impossible always to separate them. It is very
sirable, however, to attempt to do so, as the one is not incom-

patible with recovery, or, at any rate, a fair chance of a prolonged existence, while the other is like a person slumbering over a volcano. The marked cachexia so apt to be found along with renal disease points to its being a blood-poison of a more grave character than lactic acid. The one produces no change in the finer tissues of the eye, while lithiasis does so; these changes are revealed by the ophthalmoscope, and perhaps ultimately the absolute diagnosis will thus originate. Already the changes thus recognized may be considered to go a long way towards settling the question. The difference in the results produced by each poison on the heart is most interesting, and is not without diagnostic value. The poison of rheumatism, the consequence of altered nutrition, and intimately associated with the processes connected with tissue-nutrition, acts on the valvular apparatus by its affinity for the fibro-serous textures, puckering and disturbing the valves; whereas the blood-poison in renal mischief is related to retrograde tissue-metamorphosis, and by it is the muscular structure of the heart affected. The blood, when laden with renal derivatives, flows with difficulty, and leads to change in the driving power of the heart; hypertrophy occurring when the restorative capacity of the system is equal to such compensatory change, or a mixture of it and dilatation, or may be simple dilatation, according as the system is more or less unequal to it. In the more grave cachexia of granular kidney, an impression haunts me that iron is more serviceable than in rheumatism. Certainly it is a great protection against the structural lesions that follow in its wake. Iron appears to have a peculiar power over blood-formation, and exercises a remarkable protecting power over both blood and tissues in chronic cachexia. The emunctories of lactic and uric acid are allied, and in each is this importance of keeping up the action of the skin most plainly visible. Pathology tells us that the sufferers from chronic renal disease are numerous. Dr. Murchison estimated the proportion so affected, in the deaths at the Fever Hospital, at one-fourth of the whole; while Dr. Dickenson found a still higher proportion in a series of deaths from accident brought into St. George's. It behoves us, then, to look more carefully into the cases of chronic rheumatism, as there is ground for strong suspicion that many of our chronic rheumatics (so-called) are really sufferers from a very serious form of renal disease. Grounds there are for strong suspicion, and in many cases

absolute diagnosis; but, speaking generally, these cases are not fficiently investigated, and it is desirable that more should be own about the rational symptoms of gouty kidney than is known present. Lithiasis and gout may depend on one and the same ison, but the symptoms of lithiasis and typical gout are widely fferent. Gout is a disease of marked character—lithiasis is not ; and between the symptoms of lithiasis and chronic rheumatism istakes are being made incessantly; and I candidly admit, that ot only in many cases which were once considered rheumatic, a ider knowledge of the subject and more careful observation have emonstrated the renal origin of the ailment, and along with it in any cases an improvement in the treatment, as evidenced by melioration of the symptoms; but also that I do not feel very con- dent about being always able even yet to discriminate between em. Rheumatic gout or arthritisis due to an intermediate poison, least so supposed, which is intimately associated with debility ther constitutional or passing, but is not usually confounded with eumatism; and it is accompanied by enlargement of the joints ffected, and by other signs peculiar to itself. The treatment of hronic rheumatism and its counterfeits must largely depend on the iagnosis. In the localized forms of chronic pain the diagnosis ettles the disease, and with it the treatment. Local applications re of great utility in the relief of pain, but cannot be considered o exercise much control over the malady itself. The unity of ori- in of nerve-supply to the superficial and the more deeply seated arts directly beneath (the law of Schroeder van der Kolk) admits of xternal anæsthetics, giving relief to pain more intimately connected ith the deep-seated parts out of direct reach, the impression made n the superficial distribution being reflected on to the morbidly- cting distribution beneath. Lint wet with chloroform under watch-glass, opium and belladonna plasters, are more or ess efficacious. The application of a strong preparation of conite and glycerine spread on lint is more certain. Aconite, morphia, and chloroform mixed, and used as an external applica- ion, has its supporters. Subcutaneous injection is perhaps the most eneral favorite now. Trousseau's plan of a small ammoniacal lister dressed with morphia is not sufficiently resorted to. Flan- els wrung out of hot water, and sprinkled with tincture of opium r turpentine, are useful when large surfaces are to be covered

The addition of a solution of potash to the tincture of opium is desirable when the joints are affected, as being absorbed, and directly neutralizing the irritating acid. No form of external application or sedative is to be despised, and none too confidently relied upon. When there is effusion within the nerve-sheath, and, from its compression, numbness and lack of power, acupuncture, according to Fuller, is most useful; then strychnia or galvanism to restore the conducting power. Local applications have a uniformity of character not to be found in the systemic remedies. The general treatment of rheumatism opens up a strange field of ignorance, presumption, empiricism, futility, and sometimes of something worse—*i. e.*, the consciousness of futility without the conscience to confess it. The sufferers, worn out with pain, persisting for weeks or months, will try anything and everything that will only promise them relief. The principles on which the general treatment is to be conducted are of two kinds,—to speak scientifically—one to rouse up the eliminant organs to get rid of the poison, and the other to prevent as far as possible the re-creation of it; and in practice these two are best combined. The natural springs, sulphur, alkaline, or iron, or combined, are the general favorites with those who can afford them; and the handsome appearance of spas and watering-places is evidence of the faith in them being widespread. We must, however, remember that natural springs are merely solutions of soluble salts in water largely diluted, and in this is the advantage. This may be simulated artificially by adding a drink of water to the dose of medicine; and patients who cannot very well get to watering-places may often thus be brought under the influence of alkalies or iron, who could not be treated satisfactorily before. The natural waters bottled can now be readily procured for such as desire them. Baths of these medicated waters, combined with an increased temperature, are often of service. Turkish baths, hot air, vapor, and, in fact, baths of all kinds, are useful. The various drugs that have been employed are legion; they may, however, to some extent, be classified. There are diaphoretics in the front rank of eliminants, and of these opium, ipecacuanha, guaiacum, sarsaparilla, mezereon, and a host of others, are drawn from the vegetable kingdom; while of minerals, sulphur, antimony, mercury, arsenic, and iodine, are the chief; diuretics, as nitre, cream-tartar, bicarbonate of potash, colchicum, juniper, squill, broom, and buchu, have

ıll been resorted to; purgatives, as aloes, gamboge (also diuretic), ɔotash and soda laxatives, magnesia, etc., have also been resorted ıo and relied upon. To fulfill the second indication tonics are to ɔe most relied upon, as iron, arsenic, quinine, strychnine; and the ɔrdinary vegetable tonics, as cascarilla, cusparia, gentian, etc. Iodide of potassium often fulfills both indications. Combinations ɔf various kinds are to be resorted to according to the varying requirements of the patient. Dover's powder, or pil. al. comp., or Plummer's pill at night, and a mixture of pot. iodide and sarza, is popular, or a mixture of guaiacum and muriate of ammonia may ɔe supposited in the cold form of rheumatism. Donovan's solu-ıion is useful when there is any suspicion of syphilis, or a mixture ɔf Valangin's sol., hyd. bichlor., and muriate of iron. Alkalies are often needed pretty freely, and may be given with Fowler's solution ɔr any light form of iron; from their destructive and debilitating action, they should always be guarded by iron or some tonic, and when the acidity is great are of the greatest service. The pot. bicarb. with pot. iod. in a vegetable infusion, is a good form. Cod-liver oil is often of the greatest value; and in rheumatic gout little can be done without it and iron. Potash with colchicum in infusion of cinchona is a useful combination. Colchicum and quinine in pill are great favorites in the treatment of muscular rheumatism, as wry-neck, etc. Cream-tartar (potus imperialis) and ferri pot. tart. form a most efficient tonic in cases of mild acidity. The syr. fer. quin. et strych. after food, and some potash before, is occasionally most useful. Where there is a decidedly neuralgic element, tonics, and most especially nervine tonics, are clearly indicated. In mixed cases I have found a pill of guaiac., arsenic, and iron in pil. al. et myrrh, most efficacious; the guaiacum often being slightly cathartic itself. Cit. fer. et quin. with strychnia, for a nice tonic. Amm. carb., with or without pot. bicarb., and fer. am. cit., go well together. Even when there is evidently a syphilitic taint, it happens sometimes that the pain will yield to general tonics, and the nodes to pl. acet. and opium, that have resisted a more specific treatment. When there is a suspicion of lithiasis the treatment must be arranged accordingly. For instance, opium and mercury must be carefully withheld, and preparations of the solanaceæ or potass. bromide given instead. To show the susceptibility to mercury in cirrhotic kidney, I may adduce the following case:—An

old woman, with confirmed jaundice and a liver reduced in bulk, got four grains of hyd. biniod. in twenty-four days. The urine was laden with bile, and in hunting for bile-stained objects, I came on myriads of granular casts. The discovery made me at once stop the mercury, but already there was decided though slight salivation. Still more serious consequenees have followed the administration of opium and morphia in these conditions of the kidney. Some patients, however, take them with impunity, while others are most susceptible; it is well, therefore, to be most guarded in their use in renal disease. The advance of knowledge may shortly make clear where the variation lies. The amount of kidney affected has apparently something to do with it. Whenever patients are found with susceptibility to opium and mercury, a suspicion of renal mischief is at once generated. Iron in this condition is our mainstay. Buchu is of service where we wish to make a permanent impression on the kidney. When the heart is affected, the addition of digitalis will be found to aid materially. When there is any œdema, a purgative of pulv. jal. co., or even better, gamboge in cream-tartar, is indicated. Uric acid forms, with potash, a highly soluble salt, and in these conditions potash is a true hæmatic as well as diuretic. Potash and iron are best combined, and form the basis of treatment in these cases. Bearing in mind the diminished power of the kidney to eliminate, animal food should be given sparingly, and eggs, milk, and a farinaceous diet supposited. Cod-liver oil and a judicious stimulation may even be necessary, and the relation of fats to neuralgiæ must not be lost sight of. Warm clothing, flannel to the skin, are imperative. Scudamore advocates the use of "fleecy hosiery." Sudden changes of temperature are the great source of danger, and the utmost care must be taken at these times; they are a source of great discomfort to the true rheumatic, but to the sufferer from renal disease they are imminently dangerous. In the pains of locomotor ataxy no relief can usually be afforded; the only plan, that of reducing the brain's susceptibility to the painful impressions produced by the disintegrating process, is not successful. This melancholy condition admits of no relief by art. Between the hopeless pains of locomotor ataxy, the dangerous and insidious condition of granular kidney, and the comparatively harmless and hopeful condition of genuine chronic rheumatism, we should strive our utmost to form a diagnosis, as on it hinges the widely different prognosis, and the equally varying treatment.

THE THERAPEUTICS OF CHRONIC CONSTIPATION.

BY JOHN KENT SPENDER, M. D., London.

I DO not think that the usual professional treatment of chronic constipation of the bowels is very satisfactory. It appears to aim at the relief of the one obtrusive symptom, and to help the patient out of a present difficulty without sufficient reference to a future. It removes the obstacle of to-day by legitimate and easy means, but the obstacle of to-morrow is not prevented; hence what is done to-day must be done again to-morrow, and the remedial formula has an awkward *ad infinitum* look about it. My object in this paper is to try and raise a point of every-day practice to a scientific level.

The peristaltic action of the bowels is essentially a quiet and unfelt reflex function. Assuming that the voluntary movements subsiduary to defecation are efficiently performed—I mean the pressure exercised by the muscles of the abdomen on its containing viscera —the fault lies mainly in a defect of the peristaltic action; either it is too slow, or it has too little force, or both force and time may share the torpidness so characteristic of the phlegmatic and scrofulous temperaments. And the root of this state is a sluggish habitude of the nervous system: an insusceptibility which is strictly congenital, which may be roused for a while by dynamic and even by physical stimuli, but which tends to lapse by inherent vice into its chronic torpor. This is the key to any right theory of obstinate constipation of the bowels. The term implies simply that a person being otherwise in tolerable health, the excretory function of the alimentary canal is performed at rarer intervals than is compatible with complete health. And a twofold discomfort arises—partly mechanical, and partly depending upon a contamination of the blood by excrementitious matters.

Among the odd idiosyncrasies which nature displays in the regulation of the digestive functions, an infrequent evacuation of the bowels is very common; and it is important to distinguish this condition from the genuine morbid state rightly denominated constipation. For what is natural to a person can in no sense be called a disease. Many persons seem well, and really are well, whose physiology could not be transferred to any one else, without becoming a pathology more or less developed. No strong hard

line can ever be drawn between what is health and what is not health. And it may be declared with absoluteness that if a person can bear an infrequent flux from the intestines without the slightest apparent inconvenience, it is part of his regular vital plan, and ought not to be stigmatized by the name of disease at all.

It does not come within the scope of this paper to discuss the subject of constipation as subordinate to other maladies, but only when it exists by itself as a primary disorder of function. Assuming, then, that we have before us a case which clearly deserves the name of constipation of the bowels, the therapeutic inquiry is, how shall it be treated? And by the word treatment I push aside all temporary refuges and expedients, all drastic doses and exosmotic drains which merely empty the bowels *pro hac vice* in the fashion of flooding out an unclean sewer. It may be necessary to do this once as a preliminary step, but what ought to come next? The object of philosophic Medicine is to enable the patient to live without medicine—to realize such a state of health that the medicine (*i. e.*, the medium of health) is no longer required. To purge again and again largely and painfully for a chronic disorder is to clear away a nuisance without removing its cause, and therefore the nuisance must again and again recur. Galen and Hippocrates would have done more than this; any herbalist or quack can scarcely do less.

And yet in recent sound and classical works on digestion and its troubles, I find no very precise indication of higher aims. Aperient medicines are enumerated, and their characteristic properties described with the completeness and minuteness of a system of Materia Medica. Each drug has its specific virtues; give this or that, according as the constipation is more or less obstinate, and according as you have an adult or a child, a strong or a weak person, to deal with. But when the present exigency is remedied, what about a week hence, a month, a year? Is the same drugging to go on eternally—the same potions, pills or powders to come round in rhythmic order, always satisfying the present need and no more?

The plan which I now propose does bestow some care on the future, and professes to be, so far, curative in its operation. It comprises four therapeutic factors: (*a*) minute and frequent doses of watery extract of aloes, very rarely of extract of colocynth; (*b*)

lose of sulphate of iron (gr. jss. or ij.) always combined with h dose of the direct aperient; (*c*) regulation of the diet; (*d*) stitutional exercise. I have to write chiefly of factors (*a*) and

The quantity of extract of aloes, in all but extraordinary es, should not exceed one grain. It is conveniently given in form of a pill. With this pill there should always be mixed a e of sulphate of iron, varying from one to three grains; this is essential point of the treatment. Any other tonic of the neuic kind cannot supply the place of the iron; for the purpose I now relating, iron is not only *facile princeps*, but is not interngeable by anything else. Extract of nux vomica may be ded, if the prescriber pleases, as an ornamental appendage or as means of blending the other constituents together; and bellanna is a remedy of definite auxiliary power, but both these drugs, *oad* constipation of the bowels, are uncertain or unsatisfactory, d rarely do permanent good. I begin. then, by desiring an adult tient to take a pill composed as above three times a day, immeately after the principal meals. He is cautioned that at first ere will be probably no apparent effect, and that two or even ree days may pass before any medicinal evacuation of the bowels kes place, perhaps even then difficult and discomforting. But ithin the next forty-eight hours there will be most likely an evacation of the bowels, once or possibly twice in the day; *but nothing pproaching to purgation ought ever to be permitted*, and therefore the atient must be instructed, on the occurrence of the first loose notion, to withhold a pill, and to take only one in the morning nd one in the evening. He then continues for a time his morning nd evening pill, and is pleased to discover that so slender a menicament has such a decided effect. Not improbably, at the end f another week or fortnight, he is compelled by the same reason s before to drop another pill, and the same result is now brought bout by one pill daily, as was originally produced by three pills. Within another month he may reduce his allowance of medicine to single pill once or twice a week; and, finally, his whole scheme f medical treatment becomes merely preventive in its design and cope, and he takes a pill occasionally for the sake of maintaining ealth and warding off old troubles.

When there is a real or fanciful difficulty in the administration of pills, the best way of carrying out the plan above described is by

combining the *mistura ferri composita* with the *decoctum aloes compositum*, the doses being determined by an application of the same principles. There is wider room for the addition of auxiliary drugs, but, on the whole, I have not obtained such satisfactory results by this method.

I cannot lay too much stress on avoiding any thing like an over-purgative effect by the drugs employed. If on this account the treatment has on any occasion to be stopped, there is so much time lost and so much ground to be retraced. A patient may, unintentionally, exaggerate his difficulties, but the skilful practitioner will not therefore depart from the fundamental principle of minute and frequent doses of his medicine. In this way nature is coaxed and assisted, instead of being forced and worried; and I declare without hesitation that only by this means can a sure and permanent benefit be realized.

The urgency of regulating the quantity and quality of the food is so obvious, that I need add nothing to what has been so well laid down by systematic writers. The necessity of constitutional exercise—a definite amount every day—is equally clear, and its physiology requires no illustration here. The serious and ingravescent forms of constipation which are secondary to sctricture (cancerous or fibrous) may be temporarily relieved by the plan I have sketched; but ultimately the obstruction will defy all ordinary remedies, and our suspicions should be aroused to the possibility of organic disease, whenever a retrograde step occurs again and again after apparent success has been attained.

I append outlines of a few cases:—

Case 1, 1863.—The widow of a clergyman, aged 72, had taken for twelve years a strong dose of drastic medicine once a week, without which she alleged that the bowels would scarcely ever be moved at all, or only with extreme difficulty. She was confined to her bed, or to her room, by some obscure injury of the hip-joint. She took three iron and aloes pills daily, with an almost immediately good result; and, at the end of three months, she was able to relinquish medicine almost entirely. Until her death, in the autumn of 1865, she had an action of the bowels nearly every day, without any aid from the pills, or perhaps a pill once a month.

Case 2, 1867.—A young man, aged 21, assistant in a book-seller's shop, suffered from extreme constipation. His habit was

have an action of the bowels only once a week, or thereabouts. he pills were taken four times a day for two or three months with arcely any result. Suddenly every thing came right, but he con-ued the pills in diminishing numbers for nearly a year to prevent lapse. At present he rarely takes any, and enjoys good health.

Case 3, 1868.—A clergyman, aged 43, had suffered for some ears from constipation, which, however, was qualified by the fact at mild aperient medicine easily caused diarrhœal purging; and is, again, was succeeded by constipation worse than before. Here I lost ground in my treatment, at first, by prescribing over-oses of the extract of aloes; but a quarter of a grain with the ulphate of iron three times a day answered precisely, and he is ow reducing his medicine month by month.

Case 4, 1864.—The daughter of a tradesman, aged 18, had uffered from early childhood. Previous medical advice had sanc-ioned the routine treatment of a very powerful dose, once a week, f senna, aloes, and sulphate of magnesia, and this had been con-inued for several years. In less than three months my plan suc-ceeded so well (assisted, of course, by appropriate diet and system-tic daily exercise) that no medicine was required for some time. She now (1869) takes a precautionary pill every three or four veeks.

Case 5, 1867.—A poor woman, aged 37, consulted me at the Eastern Dispensary, Bath. Symptoms very aggravated and pain-ul. Here aloes entirely failed, and so I gave, three times a day, wo grains of compound colocynth pill with two grains of sulphate f iron. Complete success in four months, so that no medicine of ny sort was needed.

Case 6, 1868.—The wife of a military officer had been com-pelled for several months to take every day (or nearly every day) hree grains of compound colocynth pill, in order to obtain a satis-factory evacuation of the bowels. I persuaded her to adopt my plan, and I found that she required only a quarter of a grain of aloes with the iron in each pill. She now takes only one pill daily (the treament was begun ten weeks ago) with an excellent effect, and the health is much improved.

I remember one case in which only $\frac{1}{12}$ of a grain of the extract of aloes was taken from the very beginning. In every instance I have quoted the amelioration of the general health was remark-

able, due partly to the hæmatinic properties of the iron, and partly to the removal of the incessant dread and worry of being obliged to take painful and potent medicines. A haggard nervous face becomes bright, and a weary step becomes elastic and quick. I have often combined cod-liver oil with the pills, and the result has been usually good. The amenorrhœa which is sometimes associated with constipation in women is curable *pari passu* by the same means; and, if pregnancy exists, the prospects of parturition are made more encouraging if the treatment be carried out with suitable watchfulness.

There is a form of constipation, observed chiefly among women, marked by intense neuralgia of the rectum after every motion. It is well to ascertain that there is no fissure of the mucous membrane; but, this point being assured, speedy (and eventually perhaps complete) relief may be obtained by the following powder taken twice a day:—Sesquioxide of iron, one drachm; bitartrate of potash, one drachm; powdered cubebs, fifteen grains; mix. This may be continued once daily for weeks or months. I conclude with a caution. Constitutional tuberculosis had better be let alone, *quoad* aperient medicines. Peritoneal or intestinal tubercle is a grave malady to light up, and a state of comparative constipation may be nature's method of keeping things quiet in the abdominal region. At all events, aperient medicines of every kind ought to be strictly subordinate to general treatment.—*London Medical Times and Gazette.*

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

PRACTICAL TREATISE ON THE ÆTIOLOGY, PATHOLOGY AND TREATMENT OF THE CONGENITAL MALFORMATIONS OF THE RECTUM AND ANUS. By Wm. Bodenhamer, M. D. New York: Saml. S. & Wm. Wood. 1860.

RACTICAL OBSERVATIONS ON THE ÆTIOLOGY, PATHOLOGY, DIAGNOSIS AND TREATMENT OF ANAL FISSURE. By Wm. Bodenhamer, A. M., M. D. New York: Wm. Wood & Co. 1868.

Judging from the works before us, Dr. Bodenhamer is one of hose whose labors are now most wanted in the profession. It has ecome too much the fashion to write books ostensibly to advance nedical science, in reality to subserve the personal interests of their uthors. Selecting a neglected field, Dr. Bodenhamer has gone to ork with great industry and patience, with nó "special" treatment o present, no novel operations to suggest, but chiefly to gather rom all quarters material for its illustration, and to put it in order or more general usefulness. While clear in the expression of his wn opinions, he has not made a book merely to enunciate or support them.

The treatise on the *Malformation of the Rectum and Anus* is the most elaborate monograph upon the subject within our knowledge. Arranging under appropriate heads the varieties of these malformations, our author divides them into nine species, each of which is fully described, with its treatment, and illustrated by cases drawn from all sources. The cases reported amount to two hundred and eighty-seven, embracing many of interest. A chapter on Abdominal Artificial Anus appropriately concludes the subject. The book is also illustrated by sixteen finely-executed plates.

The work on *Anal Fissure* is not so free from the "personality" of the author as the one just spoken of, the cases in his own prac-

tice being somewhat ostentatiously given. A criticism might also be made upon the size of the work, as evidencing too much diffuseness, but the care and completeness with which the subject has been treated are so evident that possibly any attempt to condense would have impaired the value of the book as a thorough treatise.

H.

MODERN THERAPEUTICS: A COMPENDIUM OF RECENT FORMULÆ AND SPECIFIC THERAPEUTICAL DIRECTIONS. By Geo. H. Napheys, A. M., M. D., etc. Philadelphia: S. W. Butler, M. D. 1870.

This work is intended as a book of reference, and is well calculated to serve the practitioner who seeks advice of the many distinguished therapeutists whose recipes it contains. Under the heads of diseases of the different systems and organs are grouped the various formulæ recommended and used, with "specific therapeutical directions" by their authors; so that, there can be seen at a glance, not only the remedies suggested, but the exact proportions and combinations in which they are given. While deprecating anything that tends towards routine practice, we must admit that it is often desirable to have ready to our hand such formulæ as have been proven by experience. The work has been carefully done, and, as far as our examination goes, the recipes are reliable. We must enter a protest, however, against the large doses recommended by some of the authors in the hypodermic use of atropia.

REPORTS ON THE PROGRESS OF PRACTICAL AND SCIENTIFIC MEDICINE IN DIFFERENT PARTS OF THE WORLD. (For the year beginning June 1st, 1868, and ending June 1st, 1869.) Edited by Horace Dobell, M. D., etc., assisted by numerous and distinguished coadjutors. London: Longmans, Green, Reader & Dyer. 1870.

Dr. Dobell has undertaken the ambitious task of bringing together, in the English language, original and independent reports from all parts of the world, written by distinguished men resident in the countries which they represent, and from year to year hopes to give an exhibit of the progress of medicine. The volume before us is the first of the series—an octavo of some six hundred pages. The plan of the work is simply an alphabetical arrangement of countries and subjects, the index, however, being full and

acilitating reference. While there are many articles of value and nterest, we regret to see that the editor should have felt it incumbent to give place to so much that is useless. In fact, his sole uty seems to have been in publishing whatever was sent to him. Ve trust that in the second volume some better mode of arrangement may be adopted, and the "Reports" be condensed as much s possible, as the subject is of too wide a scope to be treated as ve have it here. We cordially second the appeal to authors of ooks, papers, etc., published or read between June, 1869, and une, 1870, that they will send to the editor copies without delay, ccompanied by a short *precis* of the passages which they think leserving of attention. H.

MISCELLANEOUS.

The Functions of the Internal Ear.—This question is examined in the "British and Foreign Med. Chirurgical Review," by Dr. Ogston. He considers that there seems little reason to doubt that the surface of the scalp and bones of the head is a not unimportant part of the organ of hearing in man, and that it aids materially in collecting impressions of sound, especially impressions of direction. The instinctive attitude of a man listening for a faint and doubtful sound is a corroboration of this view, the position such a person assumes being with the head thrown a little forwards, and the hat or covering of the head removed. In animals it is found that among the higher classes, those species which lead the most active life, and are most dependent on the accuracy with which they can distinguish the direction of sounds, have the semicircular canals most largely developed, in confirmation of which the statement of Agassiz and Gould may again be quoted, that "the semicircular canals are broad and elevated in rapacious and passirine birds, and thick and depressed in the grallæ, gallinæ, and palmipedes."

In still lower orders of creation, for example, reptiles and fishes, where perception of direction of sound would seem to be of more importance than accuracy in discriminating quality, etc., the semicircular canals and utricle are found to persist, and the cochlea to have disappeared or become rudimentary. In many such animals, too, it is of importance to observe that along with these peculiarities in structure there coincides absence of the external ear, the skull and its coverings functionating as the only media for conducting impressions of sound.

The very shape and direction of the semicircular canals may be brought to confirm such a theory of their use. Their membranous tubes, filled with internal fluid (endolymph), and floating freely in external fluid (perilymph), are more suitable to taking up delicate sounds from the vibrating bones of the cranium than the cochlea,

ich contains only internal fluid. A vibration reaching those embranous tubes would affect markedly the fluid in their interior, d the vibration would naturally be conveyed by the wave of fluid ong them to their larger extremities, where the ampullæ and ricle, the only parts provided with nervous filaments, are situated. The position of the semicircular canals in the densest part of the mporal bone, and their invariable situation in planes at right gles to each other, have also been adverted to. The position of e external canal in the horizontal plane, and its more imperfect velopment, would agree with the fact that few impressions of rection require to be discriminated by the ear when they come om positions above or below the individual, and similarly, two rtical canals, the superior and posterior, and their better develop- ent, would correspond with the necessity for frequent and accu- te distinction of the direction of sound reaching the organ from quarters more or less on a level with the individual; the supe- or canal, that running across the head, taking cognizance chiefly sounds coming from before or behind; the posterior, running om before backwards, perceiving those coming from either side. he union in mammalia of the narrow ends of these two latter nals, the superior and posterior, may be connected with their aving, in their vertical position, so frequently to work together nd assist each other. It appears likely that each canal would be ost impressible to vibrations reaching it in a direction at right ngles to its plane, striking it as it were on the flat, since such a ibration would act strongly on the whole length of the tube, while ne coming from the direction of any part of the canal's plane, ould act forcibly only on that portion of the circle placed at right ngles to the direction whence it came. From the considerations etailed above, it seems not improbable that the organ by which irection of sound is appreciated, consists of the utricle and semi- ircular canals, and that the bones of the skull and their coverings re important media for conducting sounds in such a manner that heir direction may be known. By this it is, of course, not intended o be understood that the external ear and passage have no con- nection with such a function; they would, probably, also assist in conveying direction, and the semicircular canals and utricle may in addition be to a certain extent capable of appreciating quality of sound.—*Half-Yearly Compendium.*

Lead Poisoning.—Dr. William Frank Smith writes to the "Lancet": Seeing in my hospital and dispensary practice a very large number of cases of lead-poisoning among the file-cutters of Sheffield, I have been able to notice one or two points worthy of remark:—(*a*) As to the mode in which the lead enters the system. (*b*) As to certain rarer symptoms of the disease. (*c*) As to the elimination of the *materies morbi.*

(*a*) *As to the mode of ingress.*—As is well known, in the file trade a small leaden anvil or bed, on which the file is held while being cut, is the source of the poison. I have reason to believe that it is almost entirely through the skin of the hands that the lead pentrates. The file-cutters generally wear the nails long, especially the thumb nail of the left hand, which holds the chisel and is in constant contact with the lead. Behind these appendages a large quantity of black dirt accumulates. I collected some of this from several men, and had no difficulty in chemically detecting lead. Again: having heard of the use of sulphureted baths, I employed a solution of potassium sulphide, applied with lint and gutta-percha like a water-dressing. In several cases, also, in which this local treatment had been continued many weeks, it was very curious to observe that, while the *old nail was dyed black or deep brown, the new nail near the matrix had its natural white order.*

(*b*) *As to certain symptoms.*—(1) Lead kidney: I have short notes of two cases in which a fugitive albuminuria was detected. In these cases palsy was the prevailing symptom. They were chronic cases, with evidences of an unusually high degree of plumbic saturation.—(2) Neuralgia: I have notes of ten cases of plumbic neuralgiæ. Of these, in seven the pain was confined to the left thumb and hand; in two the crural nerve and the patellar plexus were affected very severely; in one the pain was over the frontal nerve.

(*c*) *As to elimination.*—When I commenced practice in Sheffield, I employed the iodide of potassium as an eliminative, and while employing it made a somewhat remarkable observation, which has been since confirmed by Dr. Hilton Fagge. A man came under my care with severe lead palsy. On examining his mouth, I was surprised to find the lead line absent; there was no trace of it, though I looked carefully with a good lens. I pointed this out to the then house-surgeon, Mr. Cooper, and to one of my colleagues.

he patient was placed under the iodide treatment—doses, ten rains three times a day. In the course of a week or two I was ery much surprised to see little arches of black puncta over the ots of the teeth, and in the course of a few more days the blue ne was well marked, disappearing again before he left the hospital, out six weeks after his admission.

Dr. J. C. Hall has mentioned this case in his paper in the "St. eorge's Hospital Reports." Dr. Hall who has had very extensive xperience in these cases, employs a mixture containing sulphuric cid and sulphate of magnesia; and after careful comparison of the esults of the sulphuric and iodide treatment, I have now no doubt s to the superiority of the former.

The mixture which I employ, and which acts with remarkable elerity and certainty, is as follows:—Sulphate of quinine, sulphate f iron, of each one grain; strychnia, thirty-sixth of a grain; dilute ulphuric acid, five minims; sulphate of magnesia, one drachm; vater, one ounce; three times a day.—*Half-Yearly Comp.*

Red Blood-Corpuscles of Oviparous Vertebrata.—Mr. W. S. Savory, n a paper read before the Royal Society, states that, of all verte- rata, the red corpuscle is, in its natural state, structureless. When iving, no distinction of parts can be recognized; and the exist- nce of a nucleus in the red corpuscles of ovipara is due to hanges after death, or removal from the vessels. As the ovipar- us red cell is commonly seen, the existence of a "nucleus" is oo striking an object to escape any eye, but that it is so is due to he circumstances under which the corpuscle is seen, and the node in which it is prepared for examination. It is possible to lace blood-cells under the microscope for examination so quickly, nd with such slight disturbances, that they may be satisfactorily examined before the nuclei have begun to form. They may then e shown to be absolutely structureless throughout; and, morever, s the examination is continued, the gradual formation of the nuclei can be traced. The "nucleus" first appears as an indistinct shadowy substance, usually, but not always, about the centre of the cell. The outline of it can hardly, for some seconds, be defined; but it gradually grows more distinct. Sometimes it never forms so as to be clearly traced in outline, but remains as an irreg- ular shapeless mass, in its greater portion very obscure. Sometimes

only a small part, if any, of an edge can be recognised, most of it appearing to blend indefinitely with the rest of the cell-substance. Sometimes it happens that in many corpuscles the formation of a nucleus does not proceed even so far as this. No distinct separation of substance can anywhere be seen, but shadows, more or less deep, here and there indicate that there is greater aggregation of matter at some parts than at others. Occasionally some of the cells present throughout a granular aspect. When the nucleus is well defined, the cell-wall is strongly marked; when one is confused the other is usually fainter. This, however, does not apply to color; on the contrary, when the nucleus is least colored it contrasts most strongly with the surrounding cell. As a rule the wall of the cell is more strongly marked than the nucleus.

To the objection that the nuclei are present all the while, but are at first concealed by the surrounding substance, the author replies that, when one cell overlaps another, the lower one is seen through the upper clearly enough to show that the substance of these cells is sufficiently transparent to allow of a nucleus being discerned if it exists. When a nucleus is fully formed it hides that portion of the outline of a cell which lies beneath it.—*Annals and Magazine of Natural History*, July 1869. p. 69.

Removal of Large Stone by Dilatation of the Female Urethra.—Hazard A. Potter, M. D., of Geneva, N. Y., communicates to the "Medical Record," for August 16th, 1869, p. 267, the following notes of a successful operation:

Mrs. M——, residing at Penn Yan, Yates county, New York, has been afflicted about four years with difficult and painful micturition. About four weeks since she consulted Dr. Potter in regard to her case. On examination with a common female catheter, he detected a large stone in the bladder, and determined to remove it by dilatation if possible. She was placed under chloroform by Dr. George N. Dox, of this village, and on further examination the stone was found attached to the mucous membrane of the bladder. As soon as the patient was thoroughly under the influence of the chloroform, Dr. P. introduced a pair of two-pronged dilating forceps into the bladder, and dilated the urethra from *within outward.* The urethra was readily dilated in five minutes to its full capacity. Gradally lessening the dilatation from *within outward*, he passed a

pair of slender forceps between the blades of the dilating forceps, and having seized the stone, released it from its attachment. Having removed the dilating forceps, he passed his fore-finger into the urethra, palmar surface upward, brought the stone to the urethra, guiding it and pressing heavily downward with his fore-finger, and drawing steadily on the forceps.

The stone was thus removed in about fifteen minutes from the time of commencing the operation. It is oblong in shape, weighs about one ounce, and is two inches in length by one and one-eighth in breadth. The urethra was not ruptured, and the patient urinated naturally the same night, with very little voluntary discharge of urine at any time since the operation. She has perfectly recovered, with the urethra in its normal condition.

This shows the great capacity of the urethra for dilatation, and that it can be as readily dilated in a few minutes under chloroform as by the long and tedious sponge dilatations spoken of in the books. The dilatation having been commenced from the inside of the bladder outward was probably the cause of the speed and safety of the operation; and it seems to our author that such is the only proper mode of stretching the urethra in these cases.

Aphasia Produced by Stramonium and Cannabis Indica.—Two cases of aphasia from drugs are reported in the "Lancet," for August, by Dr. James Nicholls, of Chelmsford:—The first was the case of an elderly gentleman who had been ordered to smoke stramonium for the relief of asthma; this he did, and to the extent of many pipes full in an evening, mixed with a small quantity of ordinary tobacco. After several pipes he would begin to call things by wrong names, and this without knowing it; and it is remarkable that he almost always miscalled the same things. He was a very small drinker, and after sound sleep the loss of the power of intelligible speech passed away, and he was not at all aware that he had miscalled places and things after smoking, and would scarcely believe it. He afterwards died of bronchitis. I may mention that he began by only smoking one pipe of an evening, and when suffering from asthma; but he increased it to many pipes per day, and used sometimes to smoke during the day [night?] He always remembered the subjects of his conversation, but not his language.

The case of aphasia from the use of cannabis indica, is that of a

young man, aged twenty-four, who has lately been under my care. In May last he had an apoplectic attack and suffered from paraplegia afterwards, and had the most excruciating pain in the front of his head. He got little or no sleep at night, and I tried morphia, opium, etc., with very little relief. He is a chemist, and took some chlorodyne, and found some relief from the pain; whereupon I gave him some of the tincture of cannabis indica. I found it gave relief, but had to give very large doses. He took as much as two drachms of the tincture with a little hyoscyamus, and after a full dose he was free from pain; but in talking he misnamed almost everything—called his head his foot, etc. And this was always the case; but he was and is now conscious that when he has taken the drug he cannot express his ideas correctly, whereas in the stramonium case the patient did not at all remember that he had miscalled things, etc. This patient is now better, and does without the narcotic. He did not always miscall the same things or even call the thing twice by the same name; whereas the stramonium smoker *always called* his boots logs of wood, his bedroom the stable, etc.—that is, when under the influence of the drug.—*Half-Yearly Comp.*

The Anatomical Structure and the Mind.—In a review of the Anatomical Memoirs of John Goodsir, in the "Medico-Chirurgical Review," London, the writer closes by pointing out that in Goodsir's lecture on "Life and Organization," which was delivered in 1856, and which, though not previously published, is of all his compositions the one most perfectly finished, this real anatomist and physiologist hints, not obscurely, at the unanswerable reply which can always be given to whatever arguments of the type of those furnished by "Concomitant Variations," the materialist can bring for the dependence of mind upon matter. "The nature of the connection between the chemico-physical properties of the living organism and its psychical manifestations will," says Professor Goodsir, "in all probability continue a mystery." . . . . "At present I prefer stating the relation between the psyche and its organism as one of co-ordination." In speaking thus, Professor Goodsir appears to have anticipated the utterances of Professor Tyndall, delivered to the very same effect last August at Norwich, but previously, as we think, to the publication of these volumes (see 'Athenæum,' August 29, 1868). He has anticipated also the similar *dictum* of Herbert

Spencer, which may be found in his more recently published fascicles, on Psychology, as also that of another writer, in the "Medical Times and Gazette," who, in 1862, whilst speaking of certain "concomitantly varying phenomena" which did *not* seem to lead to the conclusion that our "higher and diviner life" was the "result of the abundance of our convolutions," went on to say, that how such harmony as does exist "may have come to exist between them, our faculties are incompetent either to decide or to discover, but that this shortcoming of man's intelligence affects neither his duties nor his hopes, neither his fears nor his aspirations."—*Half-Yearly Compendium.*

Treatment of Diabetes by Peroxide of Hydrogen.—The great hopes which were entertained of the action of this remedy seem to be fading away. Dr. Clifford Allbutt has given the solution of peroxide of hydrogen and the so-called ozonic ether a long and careful trial in four cases of diabetes; but the want of success in each case has deferred him from submitting any more diabetic patients to the same useless procedure. The four cases were chosen as representing four degrees of severity of the disease. The patient who was taken as an example of the extreme stage, was treated with increasing doses of peroxide of hydrogen for six weeks. No good effects were noticed, and the patient died a short time after the discontinuance of the medicine. Two of the cases were in private practice, and two were in the infirmary.—*Lancet.*

Canquoin's Paste.—At a meeting of the Therapeutical Society, M. Mayet described a new formula for his celebrated caustic, which he had contrived after much investigation. In the new form it retains its consistence for any time, and admits of application in any mode desired. It is as follows:—Chloride of zinc, 8 parts; oxide of zinc, 1; flour, dried at 100° C., 7; and cold water, 1. Mix the oxide of zinc and the flour, dissolve the chloride of zinc in the water, and having added the flour and oxide, rub in a mortar for ten minutes. The paste so prepared in a few hours acquires the requisite consistence, which it henceforth always retains. It may be preserved in a box covered with a layer of starch, but a stoppered bottle is preferable.—*Gazette Medical, and Medical Times and Gazette.*

Toxic Action of Quinia.—Cinchonia has been credited by Dr. Hinkle with occasionally causing an erythematous blush on the skin of the face and upper extremities in young children, but such an effect is not commonly ascribed to quinia. Lately, however, three interesting cases have been recorded, in each of which the administration of a small quantity of quinia was followed by an erythematous rash resembling the eruption of scarlatina. Mr. Garraway's case occurred in the person of a lady, aged forty, in previous good health. She had taken about 1 gr. of quinia (sulphate) in a glass of wine, and she was suddenly seized with a feeling of uneasiness in the præcardia, attended with œdema of face and limbs, and "an unusual erythematous rash." No unwonted article of food had been taken, and after three or four days the œdema and rash subsided, and the skin of the face, hands and feet peeled off. A tonic quania mixture was subsequently unreflectingly ordered, and two hours after taking the first dose (2 grs.), all the former symptoms recurred.

Not long after this case occurred, Mr. W. B. Hemming prescribed for an elderly lady, who was recovering from a very severe accident, a mixture containing 1 gr. of quinia in each dose. Next morning, when summoned to see her, he found that she had passed a sleepless night, and observed a vivid red rash all over the body, attended with intolerable and incessant itching. There was slight puffiness of the face, but no œdema elsewhere; a white tongue, and slight uneasiness in the præcordia. The patient at once said "I know this is the quinia, as it occurred twice before, and more severely when I took it in France some years ago." No error in diet could be discovered. The rash and irritation were persistent for several days, and then slowly and gradually subsided, followed by universal exfoliation of the cuticle. There were no other symptoms of constitutional disturbance, and the patient had taken only two doses of the mixture.

Dr. J. C. Thorowgood recalls to mind the case of a young woman, among the out-patients at the Victoria Park Hospital, who, at her second visit, told him that he had been giving her quinia. This was the case, and she knew it to be so from a rash having come out all over her body after two or three doses had been taken. The eruption reminded Dr. Thorowgood of measles, and the girl told him that on four or five occasions, when quinia

had been prescribed, a similar rash had invariably appeared.—*Brit. Med. Jour.*, Oct. 9th, Nov. 13th, Dec. 11th, 1869.

Dr. R. Lightfoot observed in 1868, an itchy papular and erythematous rash come on in half an hour after taking one dose of citrate of iron and quinia (containing 1½ gr. citrate of quinia). This occurred in a lady, aged forty-six, of a nervous irritable temperament. The eruption disappeared in three hours.—(*Brit. Med. Jour.*, Jan. 8th, 1870). Hæmaturia is also mentioned as occasionally following the administration of sulphate of quinia.—(*New Orleans Jour. of Med*). A boy, aged thirteen, was affected with hæmorrhage from the urinary organs each time that quinia was ordered, and in the case of a little girl, aged seven, the administration of quinia was invariably followed by urinary hæmorrhage.—*Brit. Med. Jour.*, Jan. 1st, 1870.

Production of Tubercle.—A full meeting of the members of the Pathological Society on Tuesday last was rewarded for attendance by an unusually good discussion on the origin and production of tubercle. The subject was introduced by Dr. Hermann Weber, who exhibited a specimen of a caseous gland taken from a patient who had previously suffered from typhoid fever, and had died from tubercular meningitis. After sketching the views of certain German pathologists on the relations which they have supposed to subsist between the absorption of effete organic matter, such as caseous deposits in glands and the deposit of tubercle in various organs of the body, Dr. Weber said that he himself had examined eleven cases in which tubercle was deposited in a serous membrane—the cerebral meninges or the peritoneum—and in each case he had found caseous deposits in certain of the lymphatic glands. He seemed to be of opinion that a caseous deposit in a lymphatic gland the result of a previous illness—*e. g.*, typhoid fever in the case of the abdominal glands, or scarlatina in the glands of the neck—would, by absorption of the ill-organized material into the circulation, give rise to a deposit of tubercle in other organs—for instance, the lungs or the serous membranes—and he thought this view was illustrated and confirmed by the experiments of Villemin on the inoculation of tubercle and by those performed by Wilson Fox and Sanderson in our own country. Dr. Wilson Fox, however, who was present, said that whilst the frequent co-existence of caseous

deposit in the lymphatic glands and of tubercles in the internal organs was an admitted fact, he thought that clinically we were only justified in regarding them both as expressions of the tubercular diathesis rather than as standing in the relation of cause and effect. A person in whom the tubercular diathesis existed, whether inherited or acquired, would at one time present caseous deposits in lymphatic glands from local or constitutional exciting causes, and at another tubercles in special organs. He regarded tubercle as a curable disease, from successive attacks of which persons might recover. With regard to the analogy traced by Dr. Weber between the results of the experiments performed by himself and others on the Rodentia and the conditions in the human subject which Dr. Weber had noticed, he showed that it was defective in important particulars. In cases of inoculated tubercle in the lower animals, the marks of local irritation were always present, and an actual concatenation or chain of pathological changes could be traced between the original point of inoculation and the secondary deposits which were found in the organs. This was not so in the human subject. There were no marks of irritation around the caseous gland or deposits extending from it. In the inoculated animals also the tubercular deposits took place in the course of the circulation. Thns, when there was tubercle depssited in the arachnoid, it was also found in the lung.

This rule did not seem to be followed in the cases observed by Dr. Weber. Dr. Sanderson then brought before the Society some exceedingly interesting experiments made by Chauveau, of Lyons, on the possibility of producing tubercle in certain of the lower animals by introducing it into the alimentary canal as food. Bovine animals were the subjects of the experiments. To a number of young bullocks a quantity of tubercle from human and bovine lungs was administered, pounded up and mixed with water. The animals had from one to four doses given them, and were killed at periods varying from one to six months after the administration. Tubercular granulations were found in the adenoid tissue under the epithelium lining the air-passages, in the alimentary canal, and even in the villi of the small intestines, and in various of the internal organs. Our readers must await the full report which we shall publish of the meeting, for a fuller account of these important experiments. But we think we need offer no apology for singling out this suggestive discussion for notice in our weekly column of

fessional chit-chat. We presume that bullocks suffering from ercular lungs swallow expectorated matters instead of discharg- them from the mouth. Does this process lead to fresh inocu- on, and the production of tubercle in the alimentary canal?— *d. Times and Gazette.*

Poisoning by Aconite—Hypodermic Injection of Ammonia.—Mr. Wills Richardson taking the hint from Professor Halford's expe- ients in reference to ammonia as an antidote to snake poisoning s led to employ it in this case. A young lady, aged twenty- e, swallowed by mistake, immediately after breakfast, two table- oonfuls of an aconite lotion, equal to about ʒ iss. of tinct. aco- e at 11 o'clock A. M. About 12.30 she became alarmingly ill th the usual symptoms of aconite poisoning, severe vomiting set and the pulse could scarcely be felt. Stimulants were at once ected by the stomach. Mr. Richardson saw her at 6.45 P. M.; 6.50 she was pulseless, and the extremities deathly cold, pupils lated, intellect unimpaired. At 7 P. M. he injected ʒ ss. of liquor mmoniæ under the skin of the arm. The injection was repeated ree times at short intervals, and after the fourth injection the dial pulse reappeared, the vomiting had almost ceased, and she egan to improve progressively. The tingling of the lower lip con- nued for sixteen days; an eschar followed one of the injections. Ir. Richardson suggests the trial of ammonia subcutaneously in hloroform poisoning and in hydrophobia.—*Medical Times and Gazette*, December 18th, 1869.

The Structureless Matrix of the Convolutions of the Brain.—The erve cells and nerve fibres of the grey matter of the brain are all mbedded in a tender jelly-like tissue, in which no structure can be bserved except granules and faint streaks. Arndt has recently hown that this structureless mass is a remnant of the embryonic granular protoplasm, out of which nerve fibres and nerve cells are irectly formed. He seems further inclined to the belief that this matrix is not, as used to be thought, mere padding, but the seat of mportant functions.—*The Academy, London.*

EDITORIAL.

IN no situation, in public or private life, does the medical man appear to such great disadvantage, or is he subject to such humiliating exposure as in the witness box. It *is* deplorable, that a popular journal can say, with great apparent justice—judging us by this event alone—" Whatever the result of this trial, one thing is certain, the medical profession stands before the people of New York a self-convicted and stupendous humbug."

Much of the ridicule that attaches to us on such occasions, is doubtless due to the inherent difficulty of the subject, the novelty of the situation, and the hectoring manner of the attorneys, to which we are all unused; accustomed as we are, to so much defference at all other times; and to the utter impossibility of the general public ever comprehending the real embarrassment of our situation. Yet a great deal is assuredly due to ignorance, on our part, of the kind of testimony suitable to such occasions, the proper manner of putting it, and to the want of some clear general laws by which we might be guided.

It would certainly be better for a physician ignorant of the subjeet in hand, to make a frank confession of his ignorance, acknowledging his disqualification for the duty required of him. To do this, requires a high order of courage, and would no doubt tend to injure the physician, in the estimation of the general public, which, ignorant of the difficulty of even accurate observation in cases of medico-legal investigation, is generously disposed to credit the profession with perfect knowledge of everything pertaining to life and death, and holds the individual peculiarly ignorant of his profession, who fails to realize *their* conception of professional erudition; whereas,

he fact is, not one physician in a hundred is qualified to nake a post-mortem examination with sufficient accuracy o make it worthy of the least consideration in a case nvolving life and death. The delicacy of a proper post-nortem investigation, the accuracy of observation required, he clear judgment necessary to associate the observed condition with the cause that may have occasioned it, together with that thorough knowledge of pathological conditions, without which it cannot be done, are attainable by but few persons, even when the most desirable opportunities are afforded, and an exceedingly small number of medical men ever have any opportunity whatever to acquire peculiar skill in the conduct of such examinations. It is not, therefore, just cause for reproach for any physician to acknowledge his incompetency, and, even if it were, he should not for one moment hesitate to accept reproach, rather than be instrumental in perverting the ends of justice.

Such observation as circumstances may necessitate, should be made with the utmost care and nicety, and related with whatever of clearness the narrator may be able to command; and should be strictly limited to the bare statement of facts, free from all attempts at display, and from all expression of opinion. As the law now stands, no physician is required to express his opinion of the facts presented, and it would be greatly better if all scientific deductions were left exclusively to those who had carefully investigated that particular branch of science; and even then, such questions should be written, and time allowed for careful and deliberate consideration. In all other countries, we believe, only those physicians are allowed to testify in such cases, who have been specially licensed, after having shown themselves possessed of the requisite qualification. A joint committee of the "American Academy," and the "Suffolk District Medical Associ-

ation" urged, through Judge Washburn, the passage, by the legislature of Massachusetts, of a very admirable law, empowering the court at its discretion to summon one or more experts as witnesses, in any case in which is "involved any question of art, or skill, or science," and to "allow to such person or persons such sum or sums, for fees as witnesses, as to said court may seem reasonable and proper, to be charged and allowed as costs to the prevailing party, if he shall have paid the same, unless the court for good cause shall otherwise determine. And the court may in their discretion, require of the parties, or either of them, to advance and pay to the person or persons thus appointed, all or any part of the sum, or sums so allowed, before the trial of any such issue be begun or proceeded with." The Judiciary Committee of the legislature did not seem to approve the law suggested, and no action was taken on it.

That one or two medical experts should be summoned by the court—rather than that a host of medical men, with no knowledge of the questions involved, should be retained by the respective attorneys to express crude and ill-advised opinions, really for the purpose of producing confusion in the minds of the jurors—seems to us to be very obviously an improvement, as well as the provision that those who take special care to inform themselves on matters of this kind should be suitably remunerated.

In closing this article we append some of the conclusions of the "Suffolk District Medical Society's" Committee, as reported in "The Boston Medical and Surgical Journal":

A medical witness would do well to remember, 1st, That no one has a *right*, as the law now stands, to ask an *opinion* of him. 2d, That, if asked for an opinion, he may refuse to give it; and 3d, That in order to throw doubt on his testimony the opposing counsel will, at times, endeavor to entrap him into the expression of an opinion, and afterwards, by subsequent questions, to lead him to

absurd conclusions, whereby his testimony, although strictly accurate, may be made to appear wrong in the eyes of the jury.

4th. In the statement of facts your Committee believe that it would be well to be as brief as is consistent with clearness. Moreover, the witness should, as far as possible, avoid all technical language. For example, a witness when about to instruct a jury will lose credit for clearness of statement, and may darken the minds of the whole court, by telling of the *scapula* instead of the shoulder-blade, or using *clavicle* for collar-bone, *sternum* for breast-bone, &c.

5th. If he be not sure that he is really an expert in the matter in hand, he should beware of going upon the stand at all. If he do so, he deserves and probably will get a severe castigation from opposite counsel, and he has no right to ask sympathy from his professional associates. He cannot blame lawyers for even apparent rudeness in their attempts to prove him before the jury to be the ignoramus he really is.

8th. Some while on the stand seem to forget the great difference there is between the statement of a fact or of a series of facts, and the inferences that may be made from these facts. The facts should be given, the inferences may be left to the wisdom of the court or jury to make. If the witness makes them he does so at the risk of severe criticism.

THE Chair of Surgery in the University of Maryland, made vacant by the resignation of Prof. N. R. Smith, has been filled by the appointment of Professor Christopher Johnston.

THE University of Maryland held its annual commencement on the 1st of March, with a large graduating class. Professor Chisolm delivered the valedictory address.

WE cannot too strongly urge upon the profession of the State the importance of a full attendance at the meeting of the Medico-Chirurg. Faculty, on April 20th.

THE Baltimore College of Dental Surgery graduated a class of twenty-four on the evening of March 2d, Professor De Rosset giving the valedictory.

WE have received the prospectus of the "National Medical Journal," a new quarterly to be published in Washington, under the editorial management of Professor C. C. Cox. The well-known ability of its editor is sufficient guarantee for the success of the undertaking. We shall give it a cordial welcome on our list of exchanges.

AMERICAN MEDICAL ASSOCIATION.—The twenty-first annual session of this association will be held in Washington, D. C., on the third day of May next, at which the following committees are expected to report:

"On cultivation of the Cinchona Tree," Dr. Lemuel J. Deal, Pennsylvania, Chairman; "On the Cryptogamic Origin of Disease, with special reference to recent microscopic investigations on that subject" Dr. Edward Curtis, U. S. A., Chairman; "On the Doctrine of Force—Physical and Vital," Dr. John Waters, Mo., Chairman; "On Variola," Dr. Jos. Jones, Louisiana, Chairman; "On the Relative Advantages of Syme's and Pirogoff's mode of Amputating at the Ankle," Dr. G. A. Otis, U. S. A., Chairman; "On a National Medical School," Dr. F. G. Smith, Pennsylvania, Chairman; "On Commissioners to aid in Trials involving Scientific Testimony," Dr. John Ordronaux, New York, Chairman; "On the Climatology and Epidemics of—Maine, Dr. J. C. Weston, New Hampshire, Dr. P. A. Stackpole, Vermont, Dr. Henry Janes, Massachusetts, Dr. H. I. Bowditch, Rhode Island, Dr. C. W. Parsons, Connecticut, Dr. E. K. Hunt, New York, Dr. W. F. Thoms, New Jersey, Dr. Ezra M. Hunt, Pennsylvania, Dr. D. F. Condie, Maryland, Dr. O. S. Mahon, Georgia, Dr. Juriah Harriss, Missouri, Dr. George Engleman, Alabama, Dr. R. F. Michel, Texas, Dr. T. J. Heard, Illinois, Dr. R. C. Hamil, Indiana, Dr. J. F. Hibberd, District of Columbia, Dr. T. Antisell, Iowa, Dr J. C. Hughes, Michigan, Dr. Abm. Sager, Ohio, Dr. T. L. Neal, California, Dr. F. W. Hatch, Tennessee, Dr. B. W. Avent, West Virginia, Dr. E. A. Hildreth, Minnesota, Dr. Sam'l Willey, Virginia, Dr. W. O. Owen, Delaware, Dr. L. B. Bush, Arkansas, Dr. G. W. Lawrence, Mississippi, Dr. W. Compton, Louisiana, Dr. L. T. Pimm, Wisconsin, Dr. J. K. Bartlett, Kentucky, Dr. J. D. Jackson; "On Veterinary Colleges," Dr. Thomas Antisell, D. C., Chairman; "On Medical Ethics," Dr. Lewis A. Sayre, N. Y., Chairman; "On American Medical Necrology," Dr. C. C. Cox, Maryland, Chairman; "To Memorialize State Medical Societies," Dr. N. S. Davis, Illinois, Chairman; "On Nomenclature of Diseases," Dr. F. G. Smith, Pennsylvania, Chairman; "On Medical Education," Dr. T. G. Richardson, Louisiana, Chairman; "On Medical Literature," Dr. J. J. Woodward, U. S. A., Chairman; "On Prize Essays," Dr. Grafton Tyler, D C., Chairman.

Voluntary communications will be presented by Dr. John Curwen, Pennsylvania, "On the Proper Treatment of the Insane;" Dr. Nathan Allen, Massachusetts, "On the Physiological Laws of Human Increase."

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Baltimore Medical Journal,

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L. I. MAY, 1870. No. 5.

ORIGINAL COMMUNICATIONS.

WO CASES OF VESICO-VAGINAL FISTULE TREATED WITH THE BUTTON SUTURE.

BY NATHAN BOZEMAN, M. D., NEW YORK.

[SEVENTH SERIES, COMMENCING OCTOBER, 1867.)

CASE X.—Mrs. C., of Boston, aged thirty-six, was placed ıder my care November, 1868, by my friend Dr. T. C. nnell, of this city. She states that she was confined with r first child February 25th, 1857, which was delivered ill-born, without instruments, after a labor of 84 hours; ibbling of urine followed in a few days, which has con-ıued to the present moment. Says that she entered a ospital in Boston, April, 1859, for treatment, but receiving relief there, she concluded to come to New York, which ıe did the following year. She did not, however, apply this city for treatment until 1867, when she was admitted to one of our large hospitals. Here she underwent two perations by a prominent physician of the attending staff, ıough without any benefit.

Examination.—Vagina considerably shortened, and in ıe upper part contracted by a narrow band stretching cross the anterior wall. The fistule was situated just

above this band, in the *bas fond*, and would scarcely admit an ordinary probe. The treatment was not commenced until February, 1869. The band above described I proceeded to divide at two points, and commenced immediately the preparatory treatment, namely: dilatation of the vagina by tents, (oiled silk bags stuffed with pieces of sponge).

Operation.—March 2d—Present, Drs. J. E. Taylor, Finnell, Hubbard and Burke. The patient was secured upon my operating chair in the *right-angle position upon the knees and chest*, and my self-retaining speculum used, when the operation was commenced without the aid of assistants. The contracting band not being entirely overcome by the previous use of tents, I concluded now to cut it entirely through up to the fistule, and secure, without further delay, complete dilatation. This step completed, I proceeded to pare off the borders of the fistule, now readily admitting two fingers. Four sutures were employed, and the line of union made transverse with reference to the axis of the vagina, and parallel with the divided band. A button of the usual shape, bent upon its convexity, was secured upon the wires by perforated shot, and the patient then put to bed with a male elastic catheter in the bladder. Nothing worthy of note occurred in the after-treatment. She was allowed to lie either on her back or side. The catheter was removed and cleansed as often as was found necessary. On the eighth day I removed the suture apparatus in the presence of Drs. Finnell, Chanveau and Morton. It was found that two of the sutures had cut, one nearly up to the line of union, which was due to slight recontraction of the band which had been divided at the time of the operation. This suture had also implicated the vesical mucous membrane, as indicated by the escape of a few drops of urine when the suture was removed. The original fistule was completely healed, and an application of nit. silver served to close the suture cut.

On the 20th of March, a little less than three weeks from e time of the operation, the patient was discharged per-ctly cured.

Remarks.—The small size of the fistule, the cicatricial ınd complicating it, and the accidental wounding of the ésical mucous membrane, are interesting points, as regards ıe operation and final result. That such an insignificant stule should have remained fourteen years, and resisted ıring the time two operations by the interrupted silver ıture in the hands of a skillful operator, is not a little sur-rising, considering the ease and facility with which it was osed by the button suture, at one operation, and the atient discharged cured.

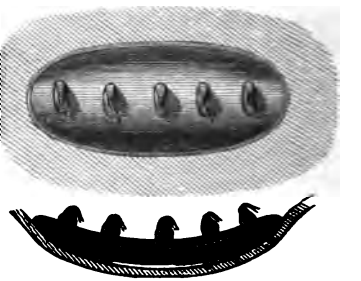
CASE XI.—Addie C., negress, aged thirty-four, was sent o me for treatment of a vesico-vaginal fistule, June 10th, 869, by Dr. J. A. Pape, of Erfaula, Alabama. She is above ıedium stature, and apparently in good health. States that he has had six children, the last still-born, which was deliv-red by forceps, April 6th, 1869, at which time she lost control over her bladder—duration of labor, 72 hours.

Examination.—The fistule was found to occupy the rigone of the bladder, admitting the index finger. The vagina above this point was narrowed by cicatricial bands, ınd the cervix uteri showed that it had sustained serious damage. Both lips had been carried away by the slough, resulting in obliteration of the uterine orifice.

Lateral incisions were first made in the contracted part of the vagina, and its dilatation then effected by tents. These incisions were repeated from time to time, and the size of the tents increased until it was found the edges of the fistule could be easily drawn together, which took about six weeks.

Operation.—July 31st, 1869—Present, Dr. Pelechin, of St. Petersburg, Russia, and Drs. Blumenthal, Weir and Moses, of this city. The patient was secured, as in the pre-ceding case, etherized, and the operation carried out with-out the aid of assistants.

After paring the edges of the fistule, five sutures were introduced, which gave perfect closure under the adjustment of my button, made of the usual shape. The accompanying cut, presenting top and edge views, affords a good idea of the adjustment in the case, and the extent of the curve belonging to the borders of the fistule beneath. The only difference between this button and the one used in the preceding case is that but one suture more was required. The after-treatment was the same as in the other case.



On the eighth day I removed the suture apparatus, and found union of the edges of the fistule throughout. After a few days the patient left her bed with entire control over her urine.

I now turned my attention to the obliterated uterine orifice, hoping to discover some landmark that would serve as a guide to its reestablishment. But in this I was disappointed. There was no indication to be found on the cicatricial surface presented for a starting point to reach the canal above. With this uncertainty, therefore, and the probable danger of wounding the peritoneum by a random incision, I determined to adopt the course which I had pursued in similar cases before, and which seems to be especially indicated, namely: to do nothing until there is an indication for it. As long as there is no accumulation of menstrual fluid in the uterine cavity, no harm can result from the occlusion. When the uterus resumes its functions, and there is an accumulation above, the pressure of the fluid upon the occluded point below will either force an outlet or give unmistakable evidence of the point at which a puncture may safely be made. My advice to the patient at the time she was discharged was based upon this course of procedure.

ome three months after she returned home she wrote me hat she had suffered great pain a short time before, but her ourses came on, and she was relieved. Thus was proven hat nature, the *vis a tergo* of the womb, was sufficient, vithout surgical interference, to overcome the opposing bstacle.

In a case I met with some years ago, which I kept under bservation several months after the closure of a large rethro-vesico-uretero-utero-vaginal fistule, the precise point vas indicated by a little vesicle. Here I made a puncture, nd fortunately opened the cervical canal above, giving vent o a little bloody fluid. The orifice was further dilated, and nenstruation afterwards became regular and easy. I dare ay the same indication might have been in this case, had he parts been carefully examined previous to the rupture f the occluded os, which resulted in the reestablishment of he menstrual flow.

A SIMPLE AND EFFICACIOUS METHOD FOR REMOVING CYSTIC TUMORS FROM THE EYELIDS.

BY JULIAN J. CHISOLM, M. D.,

Professor of Operative Surgery and Clinical Professor of Eye and Ear Diseases in the University of Maryland.

THE face and scalp being the most frequent seat of sebaceous cysts, the eyelids share largely in exhibitions of this pathological lesion. Occlusion of the excretory outlet of a meibomian gland with retention of the glandular secretion, forming a chalazion, is the most common variety of tarsal cyst. Sebaceous tumors, with excretory contents, are also met with under the skin of the eyelids, more especially the upper one. These are not only ugly chronic swellings, causing a drooping of the lid, and giving an unpleasant expression to this important feature, but they excite an irritation which restricts the uses of the eye and often produces annoying pains, even when the organ is protected against

over-use and shielded from strong light. Physicians whos advice is sought to procure relief from these annoyances, an who are not familiar with the resistance to local medication which these small discolored knots exhibit, are deluded with the impression that an ointment of iod. potassium or a lotion of bi. chlor. of mercury, or perhaps the touching of the surface with nitrate of silver or the tinct. of iodine, so efficacious in removing apparently similar tubercles in other portions of the body, will be equally active in removing tumors of the eyelids. With the true cystic formations the "we will rub it away for you in a few days" of the physician is never realized. These small, hard, round subcutaneous lumps will obstinately defy his therapeutical applications, and cast a shadow upon his professional skill and prognostic powers.

The ophthalmic surgeon who, in his early experience, has been so often baffled in trying to cause absorption of tarsal tumors, has learned that nothing short of an operation will remove these little cystic swellings. Prompt and permanent relief can be secured in this way only, and that provided the epithelial lining of these little cavities be completely removed or destroyed. Most surgeons effect a cure by excision of the whole tumor, after a painful dissection with knife or scissors; others make a free incision into the tumor, empty the contents by squeezing, and then lacerate or scrape the epithelial lining surface by rubbing it rudely with the end of a probe. Still another plan for exciting destructive inflammation in the cyst wall is by injecting into the cavity a few drops of tinct. iodine, per sulphate of iron, or a small quantity of a saturated solution of tartarized antimony or corrosive sublimate. Also, a common method is to open the sac and thrust into it a pencil of nitrate of silver, for the purpose of cauterizing freely the inner surface. This method is very effective in producing radical cures, when properly used. Most frequently the caustic is applied in excess, and

its force is spent upon the sides of the wound in the skin, and not upon the lining membrane of the tumor. The forcing of the large stick of nitrate of silver into the wound disturbs the relations between the opening into the cavity and the external incision, so that the cyst wall is folded downwards. The cauterization is expended upon a portion of the outer wall of the tumor only, instead of the lining surface of the cavity. Then, again, ugly black, disfiguring caustic marks are left upon the eyelid.

It is a modification in the use of the nitrate of silver that I have found so effective in the treatment of sebaceous cysts of the lid, and which has enabled me to discard for many years the tedious, painful and sometimes dangerous cutting out of such tumors. If the tumor be a sebaceous cyst, located between the upper portion of the tarsal cartilage and the skin, a Desmarres ring forceps is used as a clamp upon the lid, to shield the ball of the eye from injury, to fix the tumor, and prevent annoying oozing of blood. Under this ring-pressure a small opening is made into the cyst, through which its contents are squeezed out. The end of a small silver probe, dipped in nitric acid, is then passed into the cavity, is made to pass over the epithelial lining surface, and is withdrawn. Usually, in its passage into the cavity of the tumor, it cauterizes sufficiently the lips of the incision to prevent any oozing of blood when the clamp forceps is removed. When the cyst is formed by the closure of a meibomian duct, the better plan is to evert the lid and make the puncture from the conjunctival surface, the caustic being applied as directed. The advantage gained by this modification is in the more certain, thorough, and yet restricted application of the caustic, confining its cauterizing influences only to those portions in which action is desired. The results are in every case satisfactory. No after-treatment is needed.

SYMPATHETIC PARALYSIS.

BY PROF. H. R. NOEL, M. D.

MR. WILLIAM F. TURNER, cattle dealer, age 39, weight 194 pounds, health excellent, and of superb muscular development, March 7th, 1870, while endeavoring to open an oyster, glanced the knife, and made a deep punctured wound of the thenar region of the left hand, about the middle of the metacarpal bone of the thumb, and reaching to the bone. There was instantly a sharp arterial hemorrhage, which soon ceased, and decided pain, of an acute character, which continued. This pain crept slowly up the left forearm, then up the arm to the shoulder joint, and finally to the neck, reaching the neck in about five minutes. In an instant after the pain reached the neck, the *right hand* became acutely painful, and suddenly complete unconsciousness supervened, some slight spasm of the facial muscles, eyes open and staring, mouth relaxed and open; then a knotting of muscles and rigid tonic spasm ensued.

Involuntary discharge of urine took place. The patient regained consciousness with a feeling of intense pain in the *right hand* and none in the other, *i. e.* the left hand, which was wounded; but in a few minutes the pain returned to the left also, and was equally violent in the two, right and left. Unconsciousness lasted possibly ten minutes. After the return of consciousness, as shown plainly by the eyes and by the efforts of the patient to speak, there still remained, for a few minutes, a complete loss of control over the muscles of the head and neck, and the face had a flat, relaxed, paralytic expression. There was marked pallor, nausea, trembling, and great temporary prostration. The right and left hands were equally painful now, the pain involving the thumb, first, second and half of the third finger of each hand; there was unsteadiness, a sort of paralysis agitanos and numbness in each.

The numbness and pain remained, but decreasing gradu-

ly until the third day. Upon the third day the patient id his left hand was *sore*, stiff, numb or dead; his right and ached and trembled, but was not numb. Fourth day, ut little pain or numbness, and that confined to the left and; some soreness around the wound; muscular coordiation completely restored, and patient perfectly well the ighth day.

The hemorrhage was from the princeps pollicis artery, or om a branch. The pain was from a crushing of some ranches of the median nerve; but the strange element was ne reflected trouble in the right hand, and I am of the pinion that the true explanation of this case would also xplain the following cases, viz:

Earache in children during dentition; pain in the heel om calculus in the kidney; pain in the knee-joint from isease in the hip; paralysis of the arm from carious teeth; aralysis in the lower limbs from uterine trouble.

Query. Are these, cases of reflex sympathetic paralysis, nd of reflex sympathetic pain? If so, are there any laws r rules, physiological or pathological, by which we can istinguish them from cases of true paralysis?

MEDICAL SOCIETIES.

BALTIMORE PATHOLOGICAL SOCIETY.

At the meeting of the Baltimore Pathological Society, on April 1st, an interesting discussion was held on "Vaccination," Drs. S. T. Knight and W. C. Van Bibber giving the results of some experiments made in 1864 in this city.

Dr. Knight said:

"I have nothing new to present, but simply a corroboration of the views held by Jenner—'that smallpox and cowpox were merely different forms of the same disease'—and also a confirmation of the results arrived at by Sunderland, Ceely and Theile, of Europe, and by Martin, Carpenter, Leonard and McPhail, of our own country—that is: having inoculated the cow with smallpox matter, and having introduced into the human subject some of the virus of the resulting pock, I succeeded in producing a complaint, which was afterwards transmitted from one individual to another, with all the phenomena and effects of cowpox.

"And allow me here to suggest, may we not explain the circumstances of the reported failures of the experiment upon the conjecture that the cow, like the human subject, may be susceptible to the disease only once during her life?

"During the year 1864 I held the office of Health Commissioner to the city of Baltimore, at which time smallpox prevailed as an epidemic. Reliable vaccine matter not being readily procured, I purchased a young cow, and placed her in a stall in my stable. I then took a portion of smallpox lymph from a child, and placed it upon a piece of glass, covering it with another piece.

This lymph I immediately inserted into the udder of cow, by means of one of Gordon's vaccinators. The soon lost her appetite and sickened. In a few days the insertion of the lymph, a crop of vesicles made their earance upon the udder, teats, and in the nostrils. At time I invited several medical friends to see the cow, ng whom were Drs. Miltenberger, Van Bibber and gan. About the eighth day I took a portion of the ph and inserted it into the arm of a child, with the fol- ng results. In about four days a circular vesicle made appearance, which was confined to the place of punc- , and surrounded with a deep red areola, concreting a hard dark-colored scab, umbilicated in the centre. local inflammation was more severe, and the constitu- al symptoms more violent than ordinary. Considerable lling of the axillary glands occurred, and the scab, in- d of separating about the twenty-first day, did not come until the twenty-eighth day, bringing with it a portion of cellular tissue and leaving quite a hole. I used this in vaccinating other children, but with less local and stitutional disturbance.

There were two horses in the stable with the cow. The se which occupied the stall adjoining the one in which cow was placed, became lame. I had him sent to the p where I had my horses shod, the owner of which was an who had shod horses in Ireland. He sent me word t my horse had the 'grease.' On examining the animal und inflammation of the skin of the heels, and exuding m the surface an ichorous discharge, with considerable eness.

'I gave Dr. Van Bibber some of the matter obtained m the cow."

Dr. Van Bibber said:

"Concerning the vaccinations I performed with the mat- Dr. Knight gave me on the 19th of January, 1864,

which matter was from a cow he had inoculated with the virus from a patient suffering with variola:

"I had previously seen the cow once or twice during the month of January, and had observed the pustules upon her, and also her diseased appearance.

"On the 20th of January, 1864, I vaccinated two children with the virus. The crust he gave me was unbroken, well formed, half an inch in diameter, umbilicated, dark brown color, thick, firm, smooth and dry upon its maternal face. I selected this crust from several which he offered me, on account of its perfect appearance. The children I vaccinated then lived at the corner of Paca and Ross streets. They were both healthy, and between four and five months old. I vaccinated them as I usually do, with about five small incisions, four parallel, and one across these, like a farmer's talley. The vaccinations were both successful. On the tenth day of the disease I invited the late Dr. J. H. O'Donovan and Dr. F. E. Chatard, to see them. They both agreed with me that the appearance of the pustule was very perfect for that day of the disease. Both the crusts were removed on the 12th day of February, twenty-three days after the vaccination. They were both perfect, and about the size of the parent crust. On that same day (viz: the 12th of February) I vaccinated two other children from one of these crusts. They were likewise both successful. I then vaccinated many others, and when I had accumulated a number of crusts, I sent them to physicians throughout the counties with a detailed account of their origin, and requested them to give me the results of their observations with the matter. I did not receive a reply to any of my letters. I also supplied many physicians in the city with the matter, and some of them reported to me that the matter was active and satisfactory in its results.

"If I can do so, I will present the child I first vaccinated with the matter to the Society on Friday night, and some

judgment can then be formed concerning the appearance of the cicatrix. I had experimented with matter directly from an inoculated cow upon a previous occasion. It was in 1845, when Dr. Leonard was the City Physician. I obtained a crust from him and vaccinated the child of a German woman, who then resided in a house upon Pennsylvania avenue. I was then the City Vaccine Physician for the 20th ward. In this case the matter was much more active, so to speak, than in the case just related. The redness and swelling at the point of puncture were more intense and greater, and also several pustules, as many as eight or ten, appeared upon the child during the course of the disease. The fever was higher and the constitutional disturbance during the course of the disease was greater than in the case of the child to be presented to the Society. Notwithstanding this, I used the matter from this child to vaccinate others, and although it was active, yet in no other cases, after the first one, were there more than one pustule, and that at the point of operation. This matter I preserved until the date above mentioned, viz: the 20th of January, 1864; so that all the vaccinations I have performed from the year 1845 to the 13th day of October, 1864, and all the matter I have given to physicians during those dates (and there are probably few private practitioners in this city who have supplied physicians with more than I have), has had its origin from cows inoculated with smallpox virus in this city. I have mentioned the date of the 13th of October, 1864, for this reason: In October, 1864, Dr. Chatard received some vaccine virus from Europe through the house of Mellhieu & Co., of New York. He gave me some of this, and upon the 13th of October, 1864, I vaccinated two children, in Dr. George Gibson's office, with it. Both these vaccinations were successful, and from that date the two kinds of matter in my hands became mixed, so that I am unable to determine *positively* whether that which I have

used and given away since, or what I have now, is from the one source or the other.

"I have never heard (so far as I can now recollect) that any one whom I have vaccinated or revaccinated has since had varioloid or variola.

"I did not observe any marked difference in the matter which I used during nineteen years, viz: from 1845 to 1864, either in its general activity or any other quality. The matter which was received from Europe was at first several days later in showing its results than our own. Dr. Chatard told me the first child he vaccinated with it did not show any redness at the point of puncture for several days after the operation. The same thing happened with the children I vaccinated in Dr. Gibson's office. This frequently happens with matter which has been imperfectly kept too long. It loses activity, but regains its proper time by being used when fresh."

MEDICAL AND CHIRURGICAL FACULTY OF MARYLAND.

The annnal convention of the Medical and Chirurgical Faculty of Maryland was held on Wednesday and Thursday, April 20th and 21st, at the Hall of the Faculty, in Baltimore, The attendance of members and delegates was unusually large.

Professor J. W. R. Dunbar, the President of the Faculty, called the Convention to order at 12 o'clock M., when the oration was delivered by Professor C. W. Chancellor, on "The Mathematics and Chemistry of Medicine." The address of Professor Chancellor was marked by ability and eloquence, and was listened to with interest and attention.

The reports of the various officers of the Faculty were presented and adopted. The report of the Library Committee was referred to a special committee of three, with instructions to report, at the next meeting, a series of resolutions in accordance with its suggestions.

The Convention then proceeded to the election of officers for the year, when the following were nominated and elected: President—Prof. N. R. Smith. Vice-Presidents—Dr. C. H. Ohr, of Allegany county; Prof. Edward Warren, and Prof. R. McSherry. Recording Secretary—Dr. H. M. Wilson. Assistant Secretary—Dr. G. W. Register. Corresponding Secretary—Dr. E. Lloyd Howard. Treasurer—Dr. P. Kinnemon. Board of Examiners—For the Eastern Shore, Drs. Boardley, Dawson, Earle, Dickenson, and Bailey; for the Western Shore, Drs. Dunbar, P. C. Williams, Hartman, Cockrill, Jones, A. P. Smith, and Patterson. Library Board —Drs. J. H. Currey, Titcomb, Noel, Morris, Chisolm, Friedenwald and T. S. Latimer. Executive Committee— Drs. J. F. Monmonier, F. T. Miles, R. H. Sterling, W. H. Baltzell and H. P. C. Wilson. Committee of Honor—Drs. R. S. Steuart, D. A. O'Donnel and John Dickson. Committee on Memoirs, New Members and Publication—Drs. J. Gilman, William Whitridge, Duhamel, C. Johnston and G. W. Wayson. Delegates to the American Medical Association—Prof. N. R. Smith, Drs. John Morris, Samuel Smith of Allegany, D. A. O'Donnel, A. P. Duvall of Allegany H. M. Wilson, J. W. R. Dunbar, Sam'l F. Powell, Dr. Buffington of Carroll, G. W. Wayson, Henry Owings, C. W. Chancellor, William Whitridge, A. T. Shertzer, J. F. Monmonier, P. Kinnemon, Dr. Duhamel, J. J. Cockrill, T. C. Maddux, Dr. Clendenin, W. R. Baltzell, Ward of Baltimore county, Dickson of Baltimore county, Dr. Boardley of Queen Ann's, R. S. Steuart, W. G. Register, E. Lloyd Howard, A. Rich, F. Donaldson, A. Friedenwald. Delegates to Revise U. S. Pharmacopœia—Drs. H. Grimes and G. E. Morgan. The Convention then adjourned to 8 o'clock P. M. At the evening session memoirs of the late Drs. J. H. O'Donovan and H. W. Webster were read by Professors Smith and Dunbar.

The Convention reassembled at noon on Thursday, when

Professor Dunbar, after expressing his thanks to the Faculty for the support that had been rendered him while discharging the duties of his office, and his gratification in the success of the Convention, installed the newly elected President in the chair. Professor Smith, on taking the chair, spoke with much feeling of his pleasure at the honor the Faculty had conferred upon him. He trusted that the Association was entering upon a new and more prosperous career. It should strive in all ways to advance the interests of the profession, in the cultivation of kindly feelings, in the advancement of science, and the suppression of quackery.

On motion of Dr. E. Lloyd Howard, the preamble and resolutions from the American Medical Association in reference to medical education were read and adopted.

On motion of Dr. John Morris, it was determined to hold the semi-annual meeting at Cumberland, on the second Tuesday in September, and Drs. Maddux, Morris and Cockrill were appointed a committee to arrange for the transportation of the Faculty to that city.

The Chair announced the following Committees and Sections :

Committee on Lectures—Drs. H. M. Wilson, Morris and O'Donnel. Committee to Report at next Session on Compulsory Vaccination—Drs. C. H. Jones, T. C. Maddux and A. Friedenwald.

Sections.—Surgery—Dr. J. W. R. Dunbar, Professors C. Johnston, E. Warren, J. J. Chisolm and Dr. Alan P. Smith. Anatomy—Professors F. T. Miles, C. W. Chancellor, E. Lloyd Howard and Drs. J. Gilman and W. H. Baltzell. Practiee—Drs. P. C. Williams, J. J. Cockrill, R. McSherry, J. R. Page and John Morris. Materia Medica—Drs. S. C. Chew, W. C. Van Bibber, C. H. Ohr, T. Steuart and F. Donaldson. Meteorology—Drs. Aiken, William Whitridge, S. T. Powell, B. Titcomb and W. G. Register. Physiology —Drs. H. R. Noel, H. P. C. Wilson, H. M. Wilson, P.

nemon and G. E. Morgan. Psychology—Drs. R. S. art, T. B. Opie, A. B. Arnold, T. S. Latimer and A. tman.

he Faculty then adjourned, after transacting some fur- routine business, to meet in Cumberland on the second sday in September.

t night the Faculty attended an entertainment at the dence of the President, Professor N. R. Smith.

SELECTED ARTICLES.

DUST AND HAZE.

BY PROFESSOR TYNDALL, LL.D., F.R.S., M.R.I.

THE learned Professor began his lecture by stating that a sunbeam on entering a dark room becomes visible by illuminating the particles of dust floating therein. A beam of powerful light, such as that of the electric lamp, will prove the existence of these floating particles in the air of this room, or, indeed, in that of any other, even of the best ordered drawing-room in London, although they are invisible by the light of ordinary candles or gas. Some months ago, when he was engaged in a course of experiments on the action of light upon various vapors, he found this dust exceedingly troublesome. The air was wholly loaded with it; and although in his experiments it was of great importance to have the air entirely free from it, it became a matter of considerable difficulty to get rid of it. An "experimental tube" was filled with air which had been passed through tubes containing fragments of glass wetted with concentrated sulphuric acid, and marble wetted with a strong solution of caustic potash; but although the air was thoroughly dried by this means, the particles of dirt were carried along with it, and a beam of light passed through the tube discovered them in quantities as great as in common air. But it was found that by passing the air over a flame before letting it enter the drying tubes, every particle of dust was destroyed, and the beam of light passed through the "experimental tube" was *invisible*, owing to the absence of any illuminating particles. What did this prove? It showed, to his own astonishment, that this floating dust consisted of particles of combustible, and therefore organic matter—that the air which constantly surrounds us, which we are continually breathing, is loaded with living organisms, which are of necessity constantly passing into our lungs—that the dirt of the air of London is organic, and not, as he had supposed, of the same nature as the sand of the desert of Sahara, inorganic, incombustible. To make this matter quite certain, Mr. Valentin, of the Royal College of Chemistry, con-

ucted for him a gas furnace, so arranged as to heat a platinum
be and a roll of platinum gauze; the air was made to pass through
s tube and gauze, so as to insure the contact of the dust with the
t metal, and the result is given by the following table:

Quantity of air.	State of platinum tube.	State of experimental tube.
15 inches	Cold	Full of particles.
"	Red-hot	Optically empty.
"	Cold	Full of particles.
"	Red-hot	Optically empty.
"	Cold	Full of particles.
"	Red-hot	Optically empty.

hat is to say, when the air was passed *cold* into the experimental
be, the floating particles were not destroyed, and passed along
th the air; but when the particles were consumed by the hot
atinum, the experimental tube was "optically empty," there being
o floating dust in it for the beam of light to illuminate.

The following table gives the results of experiments in which the
r was allowed to pass into the experimental tube under various
onditions of speed and temperature:

Quantity of air.	State of platinum tube.	State of experimental tube.
15 inches, *slow*	Cold	Full of particles.
" "	Red-hot	Optically empty.
" *quick*	Red-hot	A blue cloud.
" "	Intensely hot	A fine blue cloud.

The cloud which appeared in the experimental tube when the
ir was passed quickly through the platinum was the smoke of the
articles burned in the furnace. He had failed in his attempts to
urn the particles in the open air by intense heat, but a flame of a
pirit lamp held immediately under the electric beam gave a result
vhich caused him the most intense astonishment. In common
vith every chemist he had hitherto considered the flame of a spirit
amp to be entirely smokeless. What then was his surprise to find
hat, on holding the flame under the beam, volumes of intensely
olack "smoke" were given off, blacker than he had ever seen issue
rom the funnel of a steamer! He tried several other flames; he
burned spirits of wine on cotton wool; he tried the flame of a
Bunsen's burner with a tall chimney, but always with the same
result. Wreaths of the blackest "smoke" ascended through the
beam of light, showing themselves in the distinctest manner. The

question then arose—Could this blackness be smoke at all? Could no other cause be assigned to explain the phenomenon? To settle this question, he tried a flame of pure hydrogen gas, in which it was impossible that carbon could be to make real smoke. But, on this being held beneath the electric beam, the same black wreaths ascended. A mass of red-hot iron gave the same result. What, then, was this darkness which was shown to exist in cases where smoke was impossible? It was simply the darkness of stellar space—the darkness caused by the absence of organic dust, showing that pure air is dark by virtue of its own intense transparency. Nothing could demonstrate more clearly the invisibility of the medium which renders all things visible. The flame held under the beam destroys the floating particles, and a stream of pure air ascends across the horizontal beam, which, jostling aside the dust-laden air, causes a black band of pure transparent air, free from illuminated dust (in appearance exactly like smoke), to take its place across the beam. But it was also discovered that it was not necessary to consume the dust in order to produce pure air. It was found that a sphere of heated copper held beneath the beam of light produced the same "smoky" appearance, and that, too, even after the temperature of the copper had fallen below that of boiling water. Upon this it was suggested that a sphere of boiling water would produce the same result, and this was found to be the case, although in a less degree. The reason of this is simple; the heated body quickly heats the air immediately surrounding it, but not the particles; the pure hot air ascends and makes its dark track across the beam, but the particles are left behind.

The learned Professor then showed that any gas, provided it was free from these floating particles of dust, would produce the same dark mark across the beam of light. He took a common glass shade, and placed it with its mouth downwards so that the beam should pass right through it from side to side. The shade being full of the air of the room, the light was of course visible all the way through it. He then introduced into the upper part of the shade, above the beam of light, a tube connected with a reservoir of hydrogen gas. The hydrogen soon filled the upper part of the shade, and, occupying more and more space as its volume increased, it speedily filled the greater part of the shade, the beam of light *in* the shade fading from the sight of the spectators as the hydrogen

cupied the space traversed by it. The shade being removed, the
am of light reappeared instantaneously in its place, but on the
drogen being allowed to escape, a darkness as of a cloud of
oke passed across the beam, which immediately after its passage
umed its usual unbroken aspect. A gentleman present seemed
lined to question the success of this experiment, but the learned
ofessor partially repeated it, and completely proved his point.
aving then observed that any other gas—*e. g.*, common coal gas—
ves equally well for this experiment, he said that, seeing that the
we are constantly breathing is so entirely laden with these par-
les of organic matter, the wonder is that so small a portion of it
sometimes hurtful to human life. For some time an opinion had
evailed that contagious diseases were spread by a malaria; it was
lieved that matter in a state of decay entered people's bodies and
oduced in them conditions of decay like its own. It was seen
at the process of fermentation went on in this way, and that a
le leaven leavened the whole lump. Why, then, it was asked,
ould we not believe that diseases propagate themselves thus?
t in 1836 an answer was given to this question by the discovery
the yeast plant, and the fermentation was shown to be a process
life instead of one of decay. In 1837 Schwann discovered that
eat highly heated and excluded from air never putrified. Putre-
ction is, then, the result of something derived from the air, which
s the power of propagating itself in the body, and must be a
ing organism such as the dust of the air has been shown to con-
in. The "germ theory" of the propagation of disease has been
owly gaining ground in the opinions of medical men, and, at a
ne when it was thought improbable by many of them, the Presi-
ent of this Institution was one of its ablest advocates. These
erms floating in the air enter the human frame, and, growing there,
roduce various disorders. In this way the Asiatic cholera, from a
nall beginning in the delta of the Ganges, in seventeen years occu-
ied nearly the whole world. And the action of these germs has
s exact counterpart in another part of nature's field; for as an
corn will produce an oak bearing a crop of acorns each capable
f reproducing its parent tree, and so a whole forest may spring
om a whole seedling, so a germ of smallpox lodged in the body
ill produce a crop of pustules each one capable of reproducing
erms like the original one. Medical men know well how import-

ant it is to exclude air from abscesses when they are being operated on, and instruments are specially constructed for this purpose; yet although the pus extracted on the first operation is sweet, on the second and all other operations it is generally putrescent and swarming with living organisms called *vibrios*. This is caused by the germs clinging to the trocar, and by it introduced into the abscess, flourishing therein under favorable conditions of temperature and food. The only way to "clean" the canula and trocar of these germs is to heat the instruments as highly as their temper will allow. It was an ascertained fact that the troublesome hay-fever was caused by these same vibrios.

Having shown that it is useless to try to blow away the dust from a beam by means of a bellows, since the dust from the bellows immediately replaces that blown away, the learned Professor proceeded to experiment on the state of the human breath as it issues from the lungs. His lungs being full of the common air of the room, he breathed through a heated tube so as to cause the breath to ascend through the beam of light, at the same time preventing any cloud of condensed aqueous vapor. At first no extraordinary appearance was visible, but soon the familiar dark clouds denoting the absence of illuminated dust appeared. He contended that this showed the history of the air in the lungs as clearly as if his skin and breast-bone were transparent. The air which entered the lungs at the end of taking breath, being also the first to leave them on expiration, had not had time to deposit its dirt; but the air which entered the lungs first, and left them at the end of the expiration, having deposited its dust at the bottom of the lungs, showed its freedom from floating particles by its smoke-like track across the beam. Again, he filled his lungs with air filtered through cotton wool, and, on expiration, the dark clouds were seen from beginning to end. This proves that a filter of cotton wool will exclude these particles, as might also be seen by filling the nozzle of a common bellows with lightly packed cotton wool, and directing the air across a beam of light. Instinctively acting on this principle, a medical man, on entering an infected atmosphere, places his silk handkerchief over his mouth and nostrils; and, taking this hint, Dr. Bence Jones had tried the above experiment, substituting silk for cotton wool, and had obtained substantially the same result though in a less perfect degree. In conclusion, the learned Pro-

ssor recommended the use of a respirator of cotton wool as a eans of giving pure air to the lungs to all who are likely to be reathing germ-laden atmospheres; and at the present time, when ondon was full of scarlatina, he would recommend these respira-rs as the most efficient protection; and, armed by one of these, e declared his perfect willingness to enter any atmosphere, how-ver infected it might be by scarlatina or other diseases.—*London Medical Times and Gazette.*

BELLADONNA IN THE TREATMENT OF TYPHOID FEVER.

BY B. KELLY, M.D., L.K.Q.C.P., L.R.C.S Edin.

WITHOUT entering into the fruitless question as to whether fevers be due to specific germs or to pythogenic fluids or gases, all of which, up to the present have failed to be detected by the microscope and the most searching chemical tests, I would merely state that my own convictions lean strongly to the theory that this class of diseases owe their origin to the introduction into the circulation of septic vapors or gases, and that these subtle agents (fomites) are not unfrequently developed on the surface of the bodies of the individuals subsequently tainted by them. Hence the prevalence of these maladies among the poor and all those who, from ignorance or other circumstances, ignore the practice of frequent ablutions and personal cleanliness. But more, there must exist, as a *sine qua non*, a predisposition on the part of the patient, as well as an exciting cause for the effectual production of fever. Now, of all the predisposing elements, there is none, perhaps, more powerful than poverty, with its concomitant train of filth, squalidness, and misery.

The treatment of fever has been as conflicting and diversified as have been the opinions of physicians respecting its pathology. When the inflammatory theory was in vogue, bleeding, blistering, and purging were pressed into service with terrible effect, as shown by the awful mortality which attended this form of treatment. And it has not seldom happened that the disease had been mistaken by a similarity in outward appearance with the phenomena of some local phlegmasia, and doctored accordingly, as we have good reason

to suppose, judging from the lesions presented in post-mortem examinations. No one can read the clinical works of Broussais without being seriously convinced of the truth of this statement. Now, that the zymotic, or putrid, and germinal theories reign supreme among the more orthodox members of the profession, the antiseptic plan of medication, based, as I believe it to be, upon sounder pathological doctrines, has superseded the more heroic method alluded to, and, comparing the results of both, with decided benefit to patients.

The treatment which I now propose has neither been predicated by the inflammatory nor yet by the zymotic nature of the disease, and consequently can not be styled either antiphlogistic or antiseptic, at least in the ordinary acceptation of these terms; and yet, viewing it in the light of its action in preventing congestions and inflammations and dissipating the putrid epiphenomena of fever, it well deserves the title of both.

Nearly six years have now elapsed since I recommended, on physiological grounds, belladonna in the treatment of enteric fever. During this time ample opportunity has been given me of testing its therapeutic virtues. Believing firmly, as I did, in the correctness also of the pathological deductions upon which the new treatment was especially based, I entered, I must confess, upon the trial with rather sanguine hopes of success. Never, I can say, have expectations been more fully realised, or crowned with happier results. Indeed, the greatest difficulty I now find is to speak of it in such a way as not to detract from its merits by false moderation, or, by falling into the opposite and equally reprehensible extreme, to puff it up with unbounded praise. Suffice it to say that not more effectually is the tetanic action of strychnine on the system neutralized by tobacco and woorari, or paludal fever combatted by quinine, or anæmia removed by chalybeates, than is the poison of typhoid counteracted by belladonna. It completely changes the whole character and outward manifestation of the disease. Delirium, coma, and subsultus quickly vanish, and are succeeded by calmness and clearness of the intellect, by natural sleep, and complete control of all the voluntary muscles. Diarrhœa is checked, and healthy consistent evacuations are established. The appetite, if excessive or deficient, is restored to something like a normal standard. The pulse, from being frequent, fluttering, and compres-

ble, is rendered slow, strong and equable. The morbid temperature of the body—the *calor mordax* of Roman, the *causus* of Greek physicians—falls to a natural level. The vital changes induced in the blood, glandular and other organs, as shown by passive hemorrhages, tenderness of the abdomen, hypostatic congestions, and ulcerations, are all arrested *in limine;* and the deranged functions of the economy return to their original equilibrium, and are performed with the same regularity as in health. The patient, after an inconceivably short space of time, usually from twenty-four to forty-eight hours after the first administration of the remedy, wakes up, wants to speak, and pronounces himself as well as ever; and indeed, to look at him, he really appears so. If, however, the physician be not thoroughly on his guard, and do not keep the patient quiet in bed pending the ordinary course and duration of the disease, serious consequences will almost inevitably follow. This precaution is all the more necessary, as both the patient and his friends often become clamorous, and, unless gifted with more than a usual share of charity and subordination, may impute sinister motives to the ill-starred medical attendant. Under such circumstances he should never neglect to impress upon them the important fact that, favorable appearances to the contrary notwithstanding, the disease must run a certain limited course; and that relapses, always dangerous in themselves, are only to be prevented by watching the patient closely and combatting untoward symptoms as they arise. These tactics I have never know to fail. Now a word as to the proper time and mode of administering belladonna.

When called to see a patient in fever I usually wait, if it be yet in its incipient stage, till all or most of the prominent symptoms are well developed before I venture to prescribe the drug. By doing so, I have the advantage and gratification of witnessing its effects in all their physiological force, while I avoid the possibility of making a mistake in diagnosis. If the patient be an adult and vigorous, I do not hesitate to give from twenty to twenty-five drops of the officinal tincture of the British Pharmacopœis every four hours. This dose must necessarily vary to suit individual ages and constitutions. The following is the formula I generally employ:—℞. Tinct. belladonnæ ʒ ij., syrupi aurantii ʒ ss., aquæ menth. pip. ʒ vijss. Ft. mist. Dosis: Pars sexta omni quarta hora sumenda. As the whole of this mixture is usually consumed in twenty-four

hours, and as it is repeated with little or no variation, day after day, for generally not less a period than two weeks, we may well imagine the enormous quantity of the narcotic that may be used with impunity, especially when the system is fully under the influence of an agent like the poison of typhoid fever. I have never known anything more serious than moderate dilatation of the pupils (which I look upon as an admirable criterion of the safety of its therapeutic action) and slight dryness of the fauces to attend its administration.

The most remarkable effects of belladonna, perhaps, are shown by the suddenness with which the patient recovers his intellectual faculties and the full power and control of his muscles. The latter he often takes pleasure in exercising by rapidly flexing and extending his arms—a circumstance which he adroitly wields as an argument in his appeals to the physician to allow him to get up and resume his ordinary vocation. All this was well exemplified in a stalwart Englishman, a patient of Dr. Samuel Giles, of New-Cross, Deptford, whom I attended as *locum tenens* a little over a year ago. As belladonna completely prevents the specific lesions in all the tissues and organs of the body naturally consequent upon the absorption of the typhic poison, it becomes an important question to decide whether the patient is rendered obnoxious or not to subsequent attacks. This is an enigma which neither experience nor observation, so far, has enabled me to solve. Reasoning, however, from analogy, we may expect the disease to reappear, if at all, under a modified and milder form.

When is it safe to withhold the belladonna from the patient? As nervous symptoms, resembling those following the sudden suspension of an habitual stimulant, are apt to supervene upon the abrupt cessation of the drug, I deem it prudent, after the disease has continued about twenty-one days, and the eruption and other accidents have entirely disappeared, to diminish the dose, and extend the intervals of its exhibition gradually. This may be safely and conveniently done during the whole period of convalescence.

As regards the matter of stimulants, I absolutely interdict them in every form and shape to patients while under the treatment of belladonna, as one of my objects is to see that neither its action is masked, nor its virtues rendered doubtful, by the complexity of remedial agents. I occasionally permit a teaspoonful or two of

punch to be given at long intervals, certainly not with a view ereby benefitting the patient very materially, but as a *placebo* rtly addressed to the minds of over-anxious friends.

he regimen of patients, while under treatment, should be at- ed to with the most scrupulous care, as the slightest excess, r in eating or drinking, is sure to be followed by an attack of gestion and an aggravation of all the febrile symptoms. I have d the following bill of fare to answer admirably in most cases: uart of soup made from cow-heel and a pound of beef; a of milk boiled with arrowroot; an ounce of cocoa prepared in nt of milk. These, together with a slice of toast, and a little and pepper, constitute the ordinary daily rations for an adult. proportions given must of course vary in many cases, but the les themselves will be found well adapted to the debilitated ers of digestion commonly arising in the course of continued r.—*London Medical Times and Gazette.*

AID TO PARTURITION, AND TO THE TREAT- IENT OF DISPLACEMENTS OF THE UTERUS, BY NEW MECHANICAL APPLIANCE.

BY PROTHEROE SMITH, M. D., M. R. C. P.,
Physician to the Hospital for Women, London.

AT makes the contrast between the easy and rapid childbirth he savage state, and the painful and lingering process in civil- life?

n answering this query, I shall endeavor to elucidate the chief on of this obvious difference, and thence to show what gives the antage to the savage. I shall then endeavor to prove that a e, which exists in the one, and is deficient in the other, explains a great extent the dissimilarity of the two instances. I hope, n, to propose a remedy for the defect, and to give my experience ts efficacy. The same question applied to uterine ailments is able of a similar explanation, and its solution will, I venture to elucidate an important cause of the frequency of diseases of men in civilized life.

Man being erect, it necessarily follows that the structure of the vis and abdominal muscles must be such as to retain the viscera

in their proper position, and to make the necessary expulsive efforts, which defecation and parturition require, with impunity.

The spinal column thrown into a series of waves, not only lessens shock from concussion, but by its lumbar curve the plane of the pelvis is rendered oblique, constituting that graceful form, which when absent is artificially supplied by a pad or bustle, and which is so designed as to support the abdominal viscera on the pubes, aided by the abdominal muscular walls and spine, and to retain them within the pelvis. But when the plane of the pelvis becomes horizontal by the obliteration of the lumbo-spinal curvature, or, as it is called, the Grecian bend, the abdominal viscera tend to prolapse towards or beyond its outlet, and to displace the pelvic contents.

This lumbar curve being absent at the extremes of life, the infant is found to be straight-backed, whilst the common evidence of old age is obliteration of the double antero-posterior curves, going on to the bowed back and drooping form of those who are well stricken in years. But the deficiency of the natural spine curves is more or less known in early adult life, it may be from disease of the bodies of the vertebræ, with which we have at present nothing to do, but its chief cause may be found to be defective muscular power, which in its cause and effect forms the chief subject of the present paper.

Unlike the ancients, who suspended their garments from the shoulders, the usages of modern society impose upon females, more or less from the period of birth, the habit of wearing a cincture round the waist. From this are suspended all the clothes, which by their weight keep up considerable pressure on the thoracic, lumbar, spinal, and abdominal muscles; and this persistent pressure often leads to degeneration of their tissues.

Thus the muscles used in diaphragmatic respiration, and for fixing the chest in forced efforts of expulsion, as well as those of the spine and abdomen, are enfeebled by absorption or degeneration of muscular fibre, and so their functions are impaired.

This alteration in the muscular tissue is well known to all who have witnessed the result of tight-lacing in the dead-house, in the muscular atrophy which marks such cases, and attenuates the abdominal walls. The consequent obliteration of the lumbar curve, and the leveling of the plane of the pelvis, destroy the natural

lines of the female figure, and open the door to all those maladies which result from the above-named deformity of the spinal column and of the pelvic outlet.

Two great canals are lodged within the pelvis, viz.: the alimentary and the generative. For the expulsion of the contents of the one in the act of defecation, there is necessarily—

1. The involuntary contractile force of the bowels; and
2. The voluntary force supplied by the spino-abdominal muscles.

In this act the direction of the pelvis is altered, so as to facilitate the passage of the fæces by means of an inclined plane, over which they are readily expelled. In the process of parturition, there is also—

1. The involuntary contractile force of the uterus.
2. The voluntary power of the spino-abdominal muscles.

In labor, the expulsion of the child through the pelvic canal is protracted, in like manner, for lack of muscular power, and the process at times seems almost left to the unaided force of the womb. Hence this organ is overtaxed, and sometimes, fails in its efforts till helped by instrumental traction.

Of the two uses now claimed for the pelvic band, the first is to supply artificially that force which may be deteriorated by dress, or suspended by anæsthetics, and by so doing to aid the overtaxed uterus, by curtailing the period, and so to lessen the risks of ordinary labor; the second to aid the treatment of uterine maladies.

I will now briefly describe the instrument, showing wherein it differs from, and in what way I believe it is superior to, any that have hitherto been brought before the profession.

The advantages of it, when used as an aid to parturition, are—

1. That a fixed point is secured for the exercise of mechanical force by means of, as it were, an artificial skeleton, the immobility of which is secured by two pads, one sacral, the other pubic, retained in their respective places by lateral springs, which embrace the pelvis below the crista ilii.

2. There having been gained a fixed point, attached to the sacral pad are two vertical levers, and one horizontal; the former (vertical springs) end each in a costal spring, embracing the thorax, and united by a sternal pad, so arranged as not to incommode the chest in respiration; the latter or horizontal is a powerful spring buckled to a belt closely adjusted to the abdominal walls, and connected

below to the pelvic band by elastic rings. It is thus constructed so as to act in the manner of the abdominal muscles. During the parturient pains this belt is readily tightened at will to assist or supply the place of the voluntary muscular contractions, and is as readily relaxed in the intervals of pain. When required, it may be made to maintain a steady uniform pressure as post partum is often needed. This force reacting upon the sacral pad affords to the patient that support in the lumbar region which is so much called for during labor, and which is usually supplied by the hands of the nurse.

In the catalogue and report of instruments published by the Obstetrical Society in 1867, there is at page 5 an ingenious contrivance of Dr. Woodward, of Worcester, which seems to answer the purpose last referred to, and which he accordingly named an Obstetrical Back-Supporter. When the power of the abdominal muscles has been impaired by the constraint of dress, or rendered deficient under the influence of anæsthetics, the instrument I now exhibit supplies artificially a force which simulates that of the abdominal muscles when in a normal state. In this way I have found it of the greatest value in cases of anteversion of the gravid uterus at the period of parturition. Only a few weeks since I quickly and easily rectified the abnormal position in a patient I have attended with four children. The ease and rapidity of birth offered a great contrast to her former labors, and the patient appeared herself to be better than on any former occasion. Her subsequent "getting up" was satisfactory in every respect, and she has regained her strength in a manner so superior to that which has happened in her other confinements as to elicit voluntary expressions of satisfaction and surprise from herself and friends.

For the mechanical treatment of uterine ailments, this instrument acts in the following way:—The pubic and sacral pads fixed by the lateral connecting springs tend, by their mutual reaction, to alter the plane of the pelvis, if too horizontal, to one more oblique, and therefore more natural. The costal springs and sternal pad, attached to the end of the perpendicular springs, help still further to increase the lumbar pressure, to throw the sacrum backwards, and, at the same time, to fix the whole apparatus. From the pubic pad, and attached to it by a movable rackwork, is a curved steel spring, which, bent to the shape of the vagina, is passed into it, whilst it is made to carry at its extremities any form of pessary or support that may be required.

The advantage of a uterine support adjusted by these means is, that its *point d'appui* being the pelvis itself, in ordinary movements of the body it is not liable to displacement.

Without attempting here to enter into the pathology of misplacements of the womb further than by referring to the cause already mentioned—viz: that of a too horizontal position of the pelvis—I would state that, in order to rectify this, the prone position of the patient for a longer or shorter time has often been adopted by practitioners; and this mode of treatment was strongly advocated by my late friend and former colleague, Dr. Rigby. To counteract such derangements, I have made many experiments, which have at length resulted in the production of this instrument.

A stand-point is thus obtained, whereby force can be gradually applied to the lumbar region, so as to alter the position of the pelvis from the horizontal to a more oblique plane. The same advantage is thus gained by the pelvic band without the confinement and constraint of the prone position, and of many other ingenious appliances, which nevertheless are much more complicated and irksome to be borne.

The principal feature of the pelvic band is that it forms an artificial skeleton, and so supplies all the chief *points d'appui* by which the complicated muscular system engaged in the acts of expulsion harmonize and effect their purpose; and it is so one with the pelvis itself as to offer a stability and comfort that no appliance depending chiefly on abdominal, and therefore unstable, pressure can possibly afford.

Enough, I trust, has now been said to warrant the hope that members of our profession will not be wanting to test its merits. Should this instrument obtain the approval of the Obstetrical Society of Edinburgh—should it prove to be, as I hope, an aid to midwifery, by lessening the pains and perils of childbirth, as well as by curtailing the often protracted attendance of the accoucheur—and should it likewise tend to facilitate the treatment of uterine dislocations—my object in bringing the subject before the Society will be fully gained.—*Edinburgh Medical Journal.*

ON THE TREATMENT OF INCONTINENCE OF URINE IN CHILDHOOD AND YOUTH BY COLLODION.

BY SIR D. J. CORRIGEN, BART.
Physician in Ordinary to the Queen in Ireland.

I PRESUME only to offer in this short paper a contribution to our list of adjuvants in the treatment of incontinence of urine during sleep, in childhood and youth. In the list of maladies not fatal there is, perhaps, not another so productive of misery and anguish as this affection.

The child of five years of age feels acutely his misfortune when he involuntarily wets his bed, and fears to meet his nurse in the morning with his face of shame.

The schoolboy who is subject to it carries about with him through his day of study and recreation a load of misery.

The climax, however, of anguish is, when the boy, grown into the young man, enters civil life, college, or the army, and dreads with fear and horror the discovery of his misfortune, though in no way his fault.

To such a degree has this terror risen that it has been sufficient to deter a young man from persevering in a course of life that otherwise presented all that he could desire.

The treatment of this affection may be divided under two heads: the first, the constitutional treatment, being that conducted on the principle of strengthening the whole system, in the hope of including in it the erring organ: the second, that of dealing directly with the organ in fault.

With the first, or that of constitutional treatment, I do not deal at all in the present paper.

The second head of treatment, or that of dealing with the organ at fault, has two subdivisions. The first having reference to medicines supposed to exert a specific action on the bladder, such as blisters, belladonna, copaiba, and to preparations of iron acting with a double effect, local and constitutional, and the second relating altogether to mechanical means and treatment, all difficult or impossible to be carried out. It is with this last I now propose to deal.

Various mechanical means of treatment have been recommended, for instance, a perineal truss. It is scarcely necessary to observe that its application is attended with insurmountable difficulties, the

npossibility of exactly adjusting its pressure, its interference with est, and the exposure attendant on using it.

Another means has been proposed, and it is said in some cases uccessfully used, of applying along the urethra on the outside and nder surface of the penis a portion of bougie, which is kept in its lace by bands of adhesive plaster applied round the penis, with fficient pressure to prevent the urine's forcing its way along the rethra.

It is scarcely necessary to observe that the use of such mechanm is utterly impracticable in nearly all cases of this miserable ffliction in childhood, boyhood, and early manhood.

The young sufferer naturally turns to the use of mechanical eans for relief, and we have on record instances in which the poor hild, under terror of shame and discovery, has tied a ligature of ord around the penis, and under the influence of the same feelings as concealed his sufferings until gangrene has set it; and Cross elates a case in which a brass curtain ring was used, which became nbedded in the inflamed corpora cavernosa, and was removed ears afterwards in fragments, along with a calculus lying in a ouch behind it.

Long time since I tried to close the opening of the prepuce with dhesive plaster, or court plaster, and in one case, that of a young an of twenty years of age, who had entered the army, and who as intelligent and careful, the result was favorable, but there were reat difficulties about it. The application took time, and could ot be carried into successful effect with boys and children.

The mechanical treatment to which I now wish to draw attenion is the treatment by collodion. It is most easy of application, ccupies scarcely a minute, and can be carried out at school, ollege, or elsewhere, in perfect privacy.

All that is necessary is, while the prepuce slightly curved up is eld with the left hand, to smear over the little cup thus formed by he extremity of the prepuce with collodion by means of a small amel's hair pencil or blunt end of a penholder. Almost as fast as pplied the collodion solidifies. In contracting it draws closely ogether the edges of the prepuce, and thus the exit for the scaping urine is closed.

A boy of eleven years of age has, after one lesson, been able to se the collodion, and has used it every night carefully and dili-

gently, so anxious has he been to cure himself of what he considered a disgrace. A fortnight's use is sometimes sufficient for the cure. A relapse is easily dealt with. A solution of gutta-percha in chloroform would seem at first sight to be equally applicable, but it is not. The solution of gutta-percha is much longer in hardening, and it possesses no contractile powers.

When the child or youth desires to pass water the little wedge or cap of collodion is easily removed with the finger nail.

When I first used this collodion application, my expectation was, that the bladder would act so forcibly against it as to cause sudden pain, and oblige the patient to jump at once out of bed and quickly remove the collodion, and that he should then repeat the application before returning to sleep.

I was agreeably disappointed. There was no pain; no awaking; but on rising in the morning the prepuce was found slightly distended with urine, and the collodion was removed without difficulty

This unexpected result would lead us to infer that the action of the muscular contractile fibres of the bladder has little to do in causing the nocturnal incontinence of urine in childhood, and that the escape of the fluid is rather due to want of apposition in the sides of the canal of the urethra, or to a feeble state of the circular fibres which are supposed to constitute the sphincter of the neck of the bladder.

Acting on this view I have recommended the child's bed to be made in such a form as that while preserving the usual slope for head and shoulders, the rest of the bed shall gently rise as an inclined plane, from hips to feet, so as to allow the urine in the bladder to gravitate towards the fundus, rather than towards the trigone.

In all the instances in which I have used the collodion application the prepuce has been, as, I believe, is nearly always the case in children and boys, projecting over the glans, or in a state that may be designated as natural phimosis. But I do not anticipate any difficulty in using the same application in cases where the corona glandis might be exposed, as the collodion would, I should expect, act equally well over the orifice of the urethra as over the opening in the prepuce.

It may be presumption, but I cannot conclude without express-

ng a strong opinion against one part of the management of these ases, which is very frequently practised through the best motives n the part of mothers and nurses, and sanctioned by the recom- nendations of some medical authorities—the practice of awaking ne child at stated intervals to pass urine.

I have never seen any benefit whatever from it, and I think I ave, on the contrary, always seen aggravation of the affection rom it, not unreasonably to be explained, on the principle that uch practice is really training the bladder to empty itself at stated eriods, when the object is that it should be trained to retain its ontents.—*Dublin Quar. Jour. Med. Science.*

TYPHUS AND TYPHOID FEVERS.

At a recent meeting of the Medico-Chirurgical Society of Edin- urgh, an interesting discussion was had on the origin of enteric ever. *Dr. Bennett* said: With regard to the general question as o noxious gases from bad drains being the specific or essential ause of enteric fever, he considered it to be far from proved. From the prevalence of water-closets, and the fact that no one could draw up the handle of one of these without admitting a stream of foul air into the house, there was ample *a priori* evidence in favor of this view, which was, however, inconsistent with a large number of facts. In the years 1833 and 1837, when great epidemics of typhus alone prevailed in Edinburgh, there were as many noxious fumes prevalent in the city as now. When he went to Paris in 1837, he found only enteric fever prevail there, and typhus was so utterly unknown, that he could not get Parisian physicians to com- prehend it. Dr. Lombard, of Geneva, made a medical pilgrimage to Edinburgh in order to study the disease. Water-closets and fæcal emanations abounded then as they do now, yet, whenever Dr. John Reid, the pathologist to the Royal Infirmary, found ulceration of Peyer's patches in fever, he at once referred the origin of the case to Linlithgow or Bathgate, the only two districts of Scotland at that time affected with typhoid. Since then many instances had been published when an outbreak of enteric fever occurred in boarding-schools or communities among whom the water-closets were defective. But Dr. Bennett held that there were emanations without epidemics, and epidemics without emanations.

When in Naples in 1863, he found the city full of the vilest odo
the houses built on the height surrounding the bay had their dra
running down to the sea in straight lines, with open gratings eve
here and there. The houses were built as ours, in flats, but, co
trary to our custom, the rent rose as you ascended, the garr
being the dearest of all; partly, no doubt, for the sake of the vie
but chiefly because you rose above the filthy smells. For half
mile out the inner margin of the bay was like turbid pea-sou
beyond that the brilliant blue of the sea became visible; and to a
to these vile smells, there was a constant escape of sulphuretto
hydrogen from the volcanic soil beneath. It might be suppose
that here, if anywhere, enteric fever must be paramount. But wh
was actually the case? In the general hospital which he visite
there were one thousand beds; in it the latrines were chambers
each end of the corridors, with a series of holes in the floors, int
or as nearly into which as possible, the fæces were allowed to fa
The ammoniacal exhalation from these apartments was somethin
astounding; yet the reply, on inquiry, was that typhoid fever wa
trifling. Again, in the military hospital of the same city, wit
similar arrangements and disgusting emanations, one case of feve
was all that could be discovered among 800 beds. When he ha
mentioned these facts at the meeting of the British Association a
Bath, Drs. Livingstone and Kirk stated that the smell emanatin
from the mangrove swamps in South Africa was something dread
ful; and that when forced to encamp in such places, fever wa
expected as a certain result, but it never occurred. Again, in th
Campagna around Rome, in autumn, fever prevails to a grea
extent; but there we have no smells, neither are there any at Ri
Janeiro, where yellow fever prevails, nor on the pestiferous coast o
Guinea. When Prince Albert died, it was endeavored to be show
that Windsor Castle was badly drained; nothing, perhaps, could b
easier; but it was a remarkable fact, that, of all the inhabitants o
Windsor Castle, Prince Albert was the only one attacked. Again
near Edinburgh, we have meadows irrigated with sewage, fro
which foul smells and noxious exhalations have been escaping fo
200 years; and yet, notwithstanding the magnitude of the nu
sance, enteric fever in that locality had never occurred Again
the night-soil men of Paris, and those who perambulated the drain
of London and Paris, were amongst the healthiest of the race

Moreover, to escape from smells and water-closets, whither can we go?—these must exist where excrement exists. But he conceived that all presumption was against considering them as the essential cause of fever.

Mr. Benjamin Bell stated that, at all events, occasionally something more than mere emanations was at work. Some years ago, in two houses connected together in Edinburgh, there were sixteen cases of fever, with a tendency to bleed per anum; two of these died. He himself had been interested in one of these cases, and had been associated with a small committee engaged in investigating the cause of the outbreak. There was no bad air, overcrowding, or bad smells; but it was found that in the back-green of one of these houses there was a well, highly prized by the inmates for its cool sparkling qualities, and into this one of the drains leaked *guttatim*. This was put to rights, and no further cases occurred

Dr. Murray said that, from considerable experience and inquiries, he had no hesitation in stating that enteric fever spread through houses in a common stair by means of the defective ventilation, the exciting cause being water-closet emanations, and that when, by complaint or otherwise, these were made to ventilate outside, or, still better, were altogether removed outside, the result was a great improvement in the health of the inhabitants.

Dr. George W. Balfour remarked, that Dr. Bennett would find considerable difficulty in proving the existence of an epidemic of enteric fever unconnected with poisonous exhalations. He believed that one important reason why Edinburgh was formerly so free of enteric fever in comparison with the present time, notwithstanding the presence of water-closets and of fæcal emanations, was, that in those days the emanations from them were not so concentrated; for he agreed with Dr. Murray, that dilution with atmospheric air was a very important agency in neutralizing the poison of such gases. He considered that the great perfection to which our system of drainage was now carried was the great source of danger; and that a system of closed pipes trapped at one end or many hours a day by many tons of sea-water, as we had in Edinburgh, and at the other but by a few inches of fluid, was the very best means of poisoning the atmosphere of our houses He further believed, that enteric fever and other allied miasmatic disorders had very much increased since our drainage had been so perfected.

He had never any difficulty in tracing serious gaseous leakage
any house so affected Some of his experiences in this matter w
very extraordinary, and in every case a proper rectification of
matter, by means of so-called extraction pipes and other necess
means, had resulted in a greatly improved sanitary condition of
house affected While he believed that gaseous emanations w
much the most common source of such affections, he quite agr
with Dr. Bell that, in many cases, they were traceable to the so
tion of the poison in the water drunk.

Dr. Matthews Duncan said that he had listened with the great
pleasure to Dr. Bennett's very able address, though he consider
it erroneous in regard to the explanation advanced of the etiolo
of the diseases referred to. Bad smells and fæcal accumulatio
were *per se* probably not the real sources of fever poison, but
careful study of the area involved was sometimes sufficient to pro
that defective and imperfect drainage was at the bottom of t
mischief. He remarked, that the spread of cholera was oft
traceable to the throwing out of the stools into back gardens ar
middens adjoining houses, their gaseous matters poisoning th
atmosphere, and their fluids percolating into the wells, and s
reaching the neighboring inhabitants. The remedies for such
state of matters were proper sanitary regulations as to the disposa
of the stools, and the bringing of water for household use in pipe
from a source distant from any contamination.

Dr. Grainger Stewart had been much interested in Mr. Bell
statement, affording as it did an additional evidence that the typhoi
like many other fever poisons, may be introduced into the syste
with the drinking water. It had been found in Clifton, upon on
occasion, that a severe outbreak of typhoid occurred in certai
houses in a particular street, and it was ascertained that the house
which drew their supply of water from a certain well—at the tim
contaminated with sewage—those who drank from one particula
well were all affected with fever, while those which did not escaped
One of the best proofs of the origin of typhoid fever from fæca
sources which he had himself witnessed, was in an endemic out
break in Hay's Court, Fountainbridge. There had been grea
fæcal accumulation, consequent upon defective drainage. Upo
clearing away this accumulation, and getting the drains properl
looked after, no more cases occurred. With regard to the ques

on of the drainage of towns, which had so close a relation to the ubject under discussion, he expressed the opinion that the system t present generally in use, and lately extended in Edinburgh at o great cost, is mostly unsatisfactory. He advocated the plan, rought forward by Mr. Menzies of Windsor, of having separate rains for the rainfall, on the one hand, and the sewage material ith water used for domestic purposes, on the other The rainfall hould be carried to the nearest stream; the sewage, which would onstitute a tolerably definite quantity of material, should be con-eyed to farms near the town, to be used for agricultural purposes. f the rainfall be allowed to mix with the sewage, it renders it too ilute to be of much value, and the quantity in such a climate as ours varies so much, that no arrangement for its distribution over he fields could be made. The fixed quantity of comparatively ndiluted sewage could, however, be easily managed. He believed hat the results of this plan, in places in which it had been tried, were eminently satisfactory.

Dr Bennett considered that it was a great mistake to confound the inhalation of a poisonous gas with swallowing impure water. It was the notion that the effluvium from drains and decomposing organic matter was the specific cause of enteric fever, that he opposed. The water mentioned by Mr. Bell as sparkling and delightful, was unquestionably contaminated by nitrates and nitrites, as had been well shown by Dr. Macadam, and these produced an irritation of the bowels often terminating in enteric fever. Since he had been Clinical Professor, he had only seen one case of enteric fever apparently originating from foul emanations: this was the case of a seaman on board of a Leith and Hamburg steamer carrying herrings, which had got loose and become putrid; subsequent inquiries had, however, revealed the fact, that while in Hamburg he had drunk nauseous water from a pump. He regarded imperfect diet, and impure drink, as the most common sources of such fevers.

Dr. George W. Balfour said, that several years ago a severe epidemic of enteric fever had raged for three years in a village with which he was well acquainted. In this village the inhabitants lived very much alike, and all drank the same water, yet the outbreak was confined to the lower half of one side of the village; and the reason for this was believed to be as follows:—Half-way

up the village, on the right hand, there was a foul privy and ya in which pigs were kept. The mingled drainage from these dun heaps, only partially cleaned once a year, ran down the gutter o one side of the village. The first cases of enteric fever occurre in the neighborhood of the privy, and their poisonous stools we added to the already poisonous drainage, and thus acquiring vir lence as it rolled, house by house was gradually affected all dow the one side of the lower half of the village, the other inhabitan remaining free.

Dr. Gillespie, in reply, stated that for twenty years past th inhabitants of Donaldson's Hospital had used similar food an drunk the same water as now, but this had been the solitary ou break of enteric fever, and he considered it clearly traceable to th escape of foul air through the lavatories which had gradually pe meated the dormitories, owing to the defective supply of water t the cisterns in the upper stories for some months, and the conse quently drying up of the trapping. The water-closets were no defective, because water had been regularly carried to supply them It was some time before the lavatories were suspected,—when they became so, and were rectified, the outbreak ceased. In regard to the Craigentinny, and other artificial meadows, he thought the case quite different, for the gases were so diffused through the atmos-phere that they became comparatively innocuous. It was possi-ble that the sulphuretted hydrogen prevalent in Naples acted as a general disinfectant, supposing Dr. Bennett's statement as to the absence of fever from that city, in spite of its insanitary condition, to be true.—*Edinburgh Medical Journal.*

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

PRACTICAL TREATISE ON THE DIAGNOSIS, PATHOLOGY, AND TREATMENT OF DISEASES OF THE HEART. By Austin Flint, M. D. Second edition. Thoroughly revised and enlarged. Henry C. Lea, Philadelphia. 1870.

Dr. Flint's valuable work on Diseases of the Heart, after going through one edition, has been thoroughly revised by its author, who says in the preface to the second edition, now before us, "many additions and alterations have been made, and much has been re-written." An analysis of about four hundred and fifty cases, recorded by the author during the period just stated (ten years), has served as the basis of the revision. It were sad indeed if so careful an observer, and so thoughtful a man as Dr. Flint, should have gathered no useful information with which to substantiate, or correct, the doctrines advanced by him ten years previously, after the careful investigation of "four hundred and fifty cases." This is an experience in itself, and that our author has profited by it, the present volume sufficiently attests. Dr. Flint has seen proper to omit from this edition the "consideration of the mechanism of the heart's beat," which is, in our opinion, an alteration of doubtful advantage, since the work is intended for "students" as well as the established "practitioner," and they would no doubt be profited by having an opportunity to refresh their memory with a clear and concise statement of the healthy "heart's beat" (such as graced the first edition), before entering upon the consideration of pathological sounds.

An interesting case, illustrating the tolerance of foreign bodies in the heart, appears in this edition, originally reported to the New York Pathological Society, by Prof. Hamilton, in 1866. "In this specimen a rifle ball is completely encysted in the muscular wall of the right ventricle, at the apex, near the septum. The patient, when a boy, was shot accidentally, the ball entering the chest near the clavicle on the right side. He recovered in six weeks, and died

twenty years afterwards with pneumonia. An examination of t parts, which are in Prof. Hamilton's possession, shows an anueri of the subclavian artery, the sac being of about the size of American walnut, this sac communicating with the internal jugu vein, and containing a cup-like depression corresponding to t size of the rifle ball. The ball undoubtedly escaping into the ju ular vein, passed to the right auricle, and thence into the rig ventricle, where, becoming fastened by getting beneath t trabeculæ, it made its way into the muscular wall and remaine occasioning little or no appreciable inconvenience." Also a ca in which one of the valves became "retroverted in connecti with rigidity of the artery behind it, that is, in the correspondi sinus of Valsalva." The symptoms of this condition were simil to those attending rupture of a valve from violence.

An interesting chapter on "The graphical characters of th pulse as delineated by the instrument, devised by Marcy, calle the sphygmograph," with illustrations of the characters denotin special lesions—also from Marcy—forms a very valuable additio

Two or three very interesting cases of enlargement of the thy roid gland associated with prominence of the eyes, palpitatio anaemia, and nervous irritability, and terminating in hypertrophy are also additions.

To call attention at this late day, to the general plan, or to ente into a discussion of the merit of a work so well known, and, i this country, so generally approved, would be entirely superfluous We therefore content ourselves with the reference made to altera tions and additions, which, however, by no means sum up th improvements made in this edition. L.

A PRACTICAL GUIDE TO THE STUDY OF THE DISEASES OF THE EYE THEIR MEDICAL AND SURGICAL TREATMENT. By Henry W. Williams, A M., M. D., etc. Third edition, revised and enlarged. Boston: Fields, Osgood & Co Philadelphia: Lindsay & Blackiston. 1869.

Probably no specialty in medicine has brought forth mor abundant and valuable fruits, in late years, than ophthalmology. S great have its advances been, that, in our large cities it has come t be regarded as beyond the proper fields of practice, and all, bu the simplest cases of eye trouble, seek the aid of its special pro fessors.

This is well; and we have no doubt that both patients, the pro

sion, and science will be benefited by the division of labor ich the rapid advances of medical science necessitate. And yet cannot but look towards those departments in which we are oidden, with something of longing, and with interest. The cialist, who is not so absorbed in his specialty but that he can l time to acquaint the profession at large with its new facts and coveries, and furnish a treatise that will serve as a guide to those o, from circumstances, must combine all departments in their ctice—as is the case with our country practitioner—deserves, l should receive, our warmest acknowledgments. This Dr. lliams has undertaken, and most acceptably has he performed task. While his work will, no doubt, be of great service to ılists, its chief value will be for those who have neither the time leisure to do more than acquaint themselves with ophthalm- gy sufficiently to practice in its simplest cases, and to know en to transfer them to the care of the specialist.

The scope of the work is full, and the descriptions clear and ncise. The fact that a third edition is already called for, is a od indication that it is appreciated.

MISCELLANEOUS.

Death by the Guillotine has usually and rightly been regarc as one of the most speedy and painless modes of exit from t world. Quite recently, however, about the time of Troppma execution for a series of horrible sensational murders, which h excited the nervous system of the world to an almost unbeara degree, a medical man named Pinel took upon him to cap th horrors by making the startling announcement that death by guillotine was one of the most horrible of deaths, because, reason of the suddenness of the process, life was retained in t head for at least three hours after death. This statement, g nished by equally logical and rational physiological explanatio and accompanied by a host of sensational stories, went the rou of the newspapers and startled the public mind not a little. I recent communication to the Societe de Medecine Legale, M. Docteur Evrard (de Beauvais) and M. le Docteur Beaumetz ha related a series of experiments which they had made upon a he which was delivered to them five minutes after decapitation. T head was placed upon a table, covered by compresses to abso the blood which might flow from it. The face was of one du uniform, waxy hue, the lower jaw fallen, and the mouth open. T expression was that of stupor, not of suffering. The eyes we open, fixed, looking straight before them; the pupils dilated; t cornea had already commenced to lose its lustre and transparenc A few particles of sawdust stuck here and there upon the face, b none were to be found inside the lips or on the tongue. T external meatus was carefully cleansed, and the experimente bringing their lips as close as possible to the ear, thrice called o the criminal's name with a loud voice. No movement of the fe tures or eyes resulted. A piece of charpie saturated with caust ammonia was next placed under the nostrils; neither the alæ na nor any of the facial muscles moved. The conjunctiva of eac eye was deeply and successively cauterized with nitrate of silve

ne flame of a candle was brought within the distance of two entimetres from the cornea, yet no contraction was observed in ne eyelids, eyeball or pupils. The organs of sense absolutely efused to give any reponse, either by their functional or more urely physical sensibility. Various incisions were then made nrough sundry nerves and muscles. The muscles alone gave igns of life; they contracted energetically under the knife, but no rimace, no reflex action, no sign of nerve life was observed. And he muscular contractions were produced by galvanism even so ong as half an hour after the brain was extracted, and when he skin was already cold, but no one could suppose that physical ife then existed; and we think our authors perfectly justified in he conclusions they have arrived at, which are, moreover, identical with those attained after a similar series of experiments by the Medical Association of Mayence in 1803,—viz: that "the sensation of external impression does not persist for one instant after decapitation;" and there can be no doubt of its truth. Without following our authors into their researches into the state of the thoracic organs, which present nothing bearing upon this point at all, and nothing, at any rate, either novel or important, we would only wish to record further that they found no fluid in the arachnoid cavity; that the vessels of the pia mater were almost bloodless, and filled with aeriform fluid; the lateral cavernous sinuses were absolutely bloodless; the ventricles contained scarcely a teaspoonful of fluid; and in no part was the brain injected.

The falling of the lower jaw, and its subsequent closure by cadaveric rigidity, is, in our authors' opinion, quite sufficient to explain the horrible stories of heads biting one another, as related by Sanson and other executioners, so far as these stories are not mere lies. Heindreich, the present executioner, has never observed any other sign of life than two or three slight movements of the lower jaw, similar to those so often seen at the last in those dying from other causes.

Those who are acquainted with "Les Mille et un Fantomes" of M. Dumas will be at no loss to account for the sensational stories of M. Pinel, and will readily trace the source of his physiological reasoning. But Dumas goes a little beyond Pinel, because he makes a head, two hours after decapitation, not only call out the name of its lover, but actually recognise him by dim candle-light

through a "sac," while the eyes dropt tears of sorrow! C authors, in a historical introduction, establish the rights of I Guillotin to the resurrection of the fatal instrument named af him, but claim our Scottish Maiden as its earliest prototype; th they say, was in use in a "Scottish clan" in the sixteenth centu —*Gazette Hebdomadaire*, 18*th Feb.*, and *Edinburgh Med. Jour.*

Catarrh and Bronchitis.—Professor George Johnson, of King College, gives, in the "British Medical Journal," some views of th treatment of those very common and troublesome maladies, nor the less valuable because of their simplicity, and that they ar devoid of novelty. Recognising as the most common excitin cause, some atmospheric influence which suppresses the action the skin, the most successful plan of treatment consists in employ ing means for the restoration of its full action. After alluding t several familiar plans for accomplishing this, he thinks that, on th whole, that which combines in the greatest degree efficiency wit universal applicability, consists in the use of a simple hot-air bath which every patient can command in his own bed-room. All tha is requisite is a tin spirit-lamp with large wick, which should hol sufficient spirits to burn half an hour. The patient sits undresse in a chair, with the lamp between his feet rather than under th chair; an attendant then folds two or three blankets around th patient, from his neck to the floor, so as to enclose him and th lamp, the hot air from which passes freely around his body. I from a quarter to half an hour there is usually a profuse perspira tion excited, which continues when the patient gets to bed betwee warmed blankets. He also advocates as another simple and effi cient mode, wrapping the undressed patient in a sheet wrung ou of warm water, and over this folding two or three blankets, remain ing thus "packed" for an hour. He remarks, in passing, that th hot air bath and the last packing are of great value in many form of disease, especially in renal affections and suppressed eruptions so often attended with alarming symptoms and fatal results, and i which medication promises so little relief.

In many cases opium will produce similar good results—bu many are intolerant to opium—camphor also in the incipient stage is a valuable remedy; but all the different modes mentioned mus be applied in the early stages.

Acute bronchitis is an exaggerated catarrh; the two diseases are essentially the same, and require the same principles of treatment, modified only by severity of symptoms. In the early stages, when the mucous membrane is dry and swollen, the hot-air bath or the wet packing may be employed once or oftener, with advantage. In this stage, tart. ant. and potas. in doses of one-sixth of a grain combined with liq. ammon. acetat. acts most happily. The temperature of the room is a matter of much importance—it should be maintained at from 45 to 65°, the air being kept moist by steam from the spout of a kettle, or any other convenient mode which may suggest itself. When dyspnœa with tightness and oppression is present, a moderate abstraction of blood by cups often affords prompt, decisive and permanent relief. Venesection is rarely required, though in the case of vigorous subjects suddenly seized with general capillary bronchitis and threatened with death from apnœa, venesection may prove a life-saving remedy.

Milk and beef tea form the most suitable diet during this stage of the disease. Stimulants and opiates are to be avoided as a rule, on account of their tendency to increase the congestion and dryness of the inflamed mucous surfaces. In the second stage, when free secretion has been established, a combination of liquor carb. ammon with chloroform, is useful as a stimulating expectorant and antispasmodic. Brandy or wine in moderate quantities may now be required. When in the advanced stage, there is profuse purulent secretion, with copious perspiration, the ammonia mixture may be replaced by one, each dose of which contains one grain sulph. quinine, two grains sulph. zinc. and twenty minims aromatic sulph. acid. When the secretions accumulate and threaten suffocation, the patient becoming blue and cold and drowsy, and the cough nearly or quite ceasing, an emetic of sulphate zinc is wonderfully efficacious in clearing the air passages. In this stage, the patient who has been laboring for breath day and night, craves rest and sleep, and often begs for an opiate. A small dose given in such a case may cause fatal narcotism. Opium should never be given to a bronchitic patient who has the slightest blueness of the lips. In our variable humid climate, bronchitis in children is one of our most formidable diseases. In the second stage, from one to three grains of hydrochlorate of ammonia in a mucilage of gum arabic every two or three hours, alternated with grain doses of tannate of

quinine will be found of great value, and nothing will give m satisfaction than the application of a jacket of oil silk next the of the little sufferer. Attention to the uniform temperature of room, and to keeping the air softened with warm vapor is of first importance —*N. O. Journal of Medicine.*

Statistics of Excision of Knee-Joint.—Dr. Lucien Penieres collected from English, German, and American journals nearly hundred cases of resection. Of these 421 were performed white swelling. The analysis of these 600 cases, along with th observed by the author in the Parisian hospitals, has led Dr P ieres to conclusions which he reduced to the following formula a work recently published on the subject of resection of the kn

The mortality after this operation is 30.7 per cent , and is than the mortality after amputation of the thigh for white swelli

Between the ages of 5 and 35, resection should always be p ferred to amputation in uncomplicated cases, if the disease limited to the heads of the bones, is not of too long standing, a has resisted all other treatment.

Considerable shortening, due to the arrest of the development the limb in the child, is not an inevitable consequence. It is many cases the result of the lesion which rendered the operat necessary rather than of the operation itself. It does not foll the operation, unless the lower end of the femur has been entir removed with the epiphyseal cartilage. It should not be a co tra-indication of the operation.

The patella should be removed. It diminishes the length treatment, and the risks of death and of secondary amputation.

The debris of the capsule ought to be removed with great ca as well as any *fungosities* of the synovial membrane.

Extension of the limb should be performed on the operati table, while the patient is still under the influence of chlorofor and immobility should be secured by appropriate means during t whole of the future treatment of the case

A tonic and strengthening regimen should be employed duri the whole after-treatment; the dressing should be simple, a should not interfere with the splints.

The mortality in resections for anchylosis is less than in oper tions for suppuration of the joint; and in consequence of this le

isk, the operation is warrantable in cases where the angularity nterferes with walking, and where the patient is losing strength rom pain.

Resection for gunshot wounds of the joint has been followed by ood results in civil practice; it should be preferred to amputation n uncomplicated cases, limited to the heads of the bones.

In military surgery, more experience is needed before it can be lefinitely settled as to the value of resections in gunshot wounds

Resection has been employed several times with success in pen-trating wounds of the knee-joint of great extent.

Amputation should always be preferred to resection in cases of nalignant tumor of the knee.

Partial resections have invariably given inferior results when ompared with complete ones, and ought never to be performed. An exception may be made in favor of the excision of the patella lone, which has been excised with good result in certain chronic ffections —*Gazette des Hopitaux*, 1869, No. 123.

Effects of Remedies upon the Cerebral Functions.—Dr. J. Nicholls as known aphasia to be produced by the use of two drugs, viz: tramonium and cannabis indica.

1. Stramonium.—An elderly gentleman was in the habit of moking stramonium very freely, mixed with a small quantity of obacco, for the relief of asthma. After several pipefuls "he would egin to call things by wrong names—*e. g.*, his boots, logs of wood; is bedroom, the stable, &c., and this without knowing it; and it s remarkable that he almost always miscalled the same things He vas a very small drinker, and always remembered the subjects of is conversation, but not his language." After a sound sleep he vould regain the power of speaking intelligibly. Dr. Paget Blake net with a case of an old gentleman who was poisoned by acci-lentally taking ʒ iss. of Tr. stramonii When he began to recover rom the immediate depressing effects of the poison, he could not rticulate a syllable, and made ineffectual attempts to speak. "He ould not speak at all intelligibly till the end of the next day, and hen continually misplaced words, calling his head his foot, his arm is leg, and misnaming the things he required, though ludicrously nconscious of his perpetual misnomers. It was several days ere ne could converse without calling something by a wrong name."

2. Cannabis Indica.—A young man, aged twenty-four, affect with paraplegia, and suffering from excruciating pain in the he could obtain but little relief from the use of the ordinary anodyn On trial it was found that cannabis indica gave relief, but large do were necessary. After a large dose, *i. e.*, ʒ ii. of Tr. cann. in with a little hyoscyamus, he was free from pain, "but in talking misnamed almost everything—called his head his foot, &c. A this was always the case; but he was and is now conscious th when he has taken the drug he cannot express his idea correct whereas in the stramonium case the patient did not remember th he had miscalled things." Dr Ogle had previously noticed a ca in which words were wrongly used by a patient whilst under t influence of opium, and Dr. Leuen, a French physiologist, stat that quinia, in addition to other effects, may produce aphasia."*

3. Bromide of Potassium.—Two curious subjects are recorded the "British Medical Journal." A patient subject to "le pet mal," began with 20 grs. daily of the bromide, and gradually i creased it up to 70 or 80 grs. *per diem*. Profound, yet disturbe sleep was caused, but more especially enfeeblement of ment power. He could scarcely balance his accounts and used to sul stitute one word for another, "in a most provoking and yet ludicrou way." Though the right idea was present to his mind, he foun great difficulty in hitting on the right words. When he cease taking the drug for a time all the unpleasant symptoms fade away; the slow uncertain speech, the heaviness of eyes, the stoo in his figure, &c. He now never exceeds 40 grs. a day, ofte takes only 20 grs, and if he finds the slightest tendency toward talking "Mrs Malaprop" English he reduces the dose at once.

Dr. Anstie has also called attention to the occasional temporar loss of memory caused by bromide of potassium.—*Pract.*, Sept 1869. A remarkable case is narrated by Dr. W. A. Hammon ("Quarterly Journal of Psycholog. Med," January, 1869), i which 30 grs. of the bromide three times a day, produced, in man suffering from paralysis agitans, profound melancholy, wit delusions, contraction of pupils, drowsiness and failure of memory The symptoms of the disease were entirely arrested, and althoug

*Dr. W. Ogle has collected a number of cases which show that loss o speech is no very uncommon consequence of the bite of a venomous snake.— *St. George's Hosp. Rep.*, Vol. iii., 1868, p. 167.

ne continued the medicine, most of its objectionable effects passed off after a few days.

Mr. Lockhart Clarke has recently witnessed still more remarkable effects from only two 3 ss. doses of this medicine. A man, who was not epileptic, took one dose at 11 A. M., and the other at 5.30 P. M., the same day. At 12 o'clock that evening he described his sensations thus:—I feel as if everything that I feel, see or think had been experienced before, as in a dream. This delusion is so strong, that I could swear that I dreamt it all." Next morning when Mr. Clarke saw him he was perfectly rational, but in such a confused state that he was wholly unfit for any kind of occupation, and when he spoke to his sister began to cry. He gradually recovered the use of his senses, and in the afternoon, about 5 P. M., suddenly remembered having come home on an omnibus the night before, and before going to bed he was quite himself again.

In connexion with these cases it may be remarked that Dr. Anstie speaks of the occasional supervention of symptoms of *temporary* spinal paralysis, and that Dr. Porter (America) has seen 4 grs of bromide of potassium repeatedly produce, in a sensitive lady, numbness in the extremities, and shooting burning pains throughout the whole system, both gradually passing off without other evil consequences.—*Dublin Quarterly Journal of Med. Science.*

Proper Food for Infants.—Dr. A. M. Ballot, in the "London Medical Times and Gazette," speaking of the proper food for infants, says:

"When you closely observe children who are bred with cow's milk, you will often observe that there is something that hinders them from thriving; they are restless; from time to time they will vomit great tenacious morcels of curd. Then often diarrhœa will occur, green membranous stools Very often, then, the milk will be still more diluted, in the supposition that it is too strong for the baby; but the case will get worse, the coagulation and diarrhœa will remain, and the child die of exhaustion. Often I heard of cases where the cow's milk had better success, but I learned soon not to be too credulous in this matter; then mostly when I inquired later after these children I heard quite the contrary; either they died, or a nurse was taken, or it throve better with another food.

"Some years since it happened that three medical men—(M.

D.'s)—had given cow's milk to their babies, which was very
digested; after some time they learned of each other that all th
had abandoned the cow's milk, and that nearly at the same ti
because the children could no more digest it. The milk was
of the same source, but it was the best then to be got here.
these cases all was strictly observed that was to be observed.
one of these children was then given ass's milk, which it diges
very well; it was calm, did sleep well, had the bowels regula
opened once or twice a day, and of a good color and quality.
drank a great quantity, but nevertheless the child would have d
of exhaustion. Then a nurse was taken, and happily, after so
time the child would suck; a month later the baby was who
altered for the best.

"I write from my experience in Rotterdam, and, as I alrea
mentioned, the feeding of the cows with 'spoeling' (grains) m
have influence on the milk. Nearly all I saw of the nursing wi
cow's milk turned out to be a mistake. I should never mo
advise it. My experience here led me to the conclusion that it
no adequate food, and when once diarrhœa shows itself, you ca
seldom master it. The coagulations of casein irritate the stomac
and this goes from bad to worse. And, albeit that its use mig
still be pled for the better class, who can get good cow's milk, th
use in general for the poor class, both as addition to mother-mil
and as a total substitute for it, as it is often used, is wholly to b
abandoned."

Carbolic Acid.—In Mr. Edgar Browne's opinion, who has wri
ten a useful paper on the merits of carbolic acid in the treatme
of skin diseases, as compared with other and older remedie
carbolic may, "on the whole, be considered a versatile jack-of-a
trades, doing many things fairly well, but in all (except as a cau
tic) inferior to some master remedy either in efficacy or conv
nience." Its action in the tineæ and other disases seems to be
no way specific, but to depend upon its power of coagulating alb
men, stimulating the skin, and excluding the atmosphere. Wi
trouble and care it may be made to do all that remedies posse
ing these qualities may be made to—no more. It is in no sense
the word magical in its effects, nor can it be regarded as an impo
ant novelty in the therapeutics of the skin as it can in some oth

partments. In the parasitic diseases Mr. Browne still holds to rosive sublimate; but he finds carbolic acid to act remarkably l in sweating feet, and recommends it to be used as a lotion, dually increasing the strength till it stings.—*Practitioner, Dec.*, 69.

Dr. Sansom has proposed the use of the *sulpho-carbolates* for ernal administration, as retaining the antiseptic properties of the d while devoid of its caustic and irritant action. They are all uble in water; but the most suitable compound is sulpho-car-ate of sodium. Mr. J. Wood has for the last year used sulpho-bolate of zinc as an external application to wounds and sup-rating abscesses, and after operations, and in gonorrhœa and nereal sores has had better results from it than from any other ans.—*Brit Med. Jour.*, March 13th and 20th, 1869; *Med. ir. Trans.*, LII.

Brain of an Aphasic.—The "Glasgow Medical Journal" for Feb. 70, contains an elaborate report by a committee on the brain of aphasic, a patient of Dr. A. Robertson, in whom hemiplegia of e right side and aphasia coexisted with fair intelligence, which mained unimpaired to the close of life. This case gives sup-rt to the view which connects the expression of language with e left hemisphere, and more especially with the frontal lobe of that emisphere. The symptoms during life were those of nearly pure phasia. The patient was intelligent; language was in her mind, ut *the power of expression* was all but lost. A very interesting ature in this case is the atrophy of the left crus cerebri and same de of the pons Varolii, and of the right side of the medulla blongata—a condition which, if the brain had been fully dis-cted, would probably have been found to extend to the thalamus pticus, corpus striatum, and corpora quadrigemina of the left emisphere. It is evident that the conductors passing to and from he palsied side and the hemisphere are wasted, showing that the entral organs of the nervous system are, like other tissues, sub-ct to the general law that, when an organ either partially or com-letely ceases to discharge the functions with which it was origin-lly endowed, its nutrition is checked, it decays, and is removed. A few cases of similar atrophy of the central nervous system in emiphlegics have been recorded, especially by a German observer,

Dr. Ludvig Turck, who traced the wasting down the spinal cord, usually in the anterior column of the side affected, and in the lateral column of the opposite side, thus so far corroborating the doctrine held by physiologists of the constitution of the spinal cord, and the functions of its columns.—*Amer. Jour. Med. Sci.*

Carbolic Acid in Gleet.—T. J. Williamson, M. D, of Cincinnati, Ohio, says:—There is probably no complaint which prostrates the mental and physical energies more effectually than that very formidable disease of the urinary passages termed gleet. Many of the best pathologists on the continents have written exhaustive papers upon the treatment of gleet to little or no effect, until the introduction of that sovereign remedy, carbolic acid, has brought about an entire change in its management. I have been called upon to prescribe for hundreds of cases, and must confess that I have never found any remedy half so efficacious as it:—

Case.—H. J., age twenty-seven years, pale, sallow, forgetful and despondent, applied to me on May 25th for treatment for gleet. As a constitutional remedy I prescribed:—

℞ Syr Iod. Ferri. ʒ ij.
Fld. Ex. Uvæ Ursi.
" " Buchu.
Syr. Humuli. aa ʒ j. M.

Sig.—Teaspoonful four times a day.

When the above became repulsive to the stomach, advised its discontinuance for several days, and directed in lieu of it—

℞ Syr. Acaciæ.
Aq. Menth. Pip. aa ʒ ii.
Carbolic Acid. grs. xv. M.

Sig.—Dessert spoonful three or four times a day.

And during entire treatment, in all cases, I prescribed—

℞ Glycerine, oz. ss.
Carbolic Acid, grs. viij. M.

Dip a No. 6 bougie in the above, and introduce up the urinary canal three times a day.

Dismissed the patient on the 5th of July in perfect health. Have used the local remedy alone in a great many cases, and the effect has been magical.—*Cincinnati Medical Repertory.*

Physiology of the Pancreatic Secretion.—Bernstein examined the cretion of the pancreas as it was discharged from persistent fistulæ the duct. The fluid possessed all the digestive attributes of the ancreas, and M. Bernstein holds that the opinion of Bernard, that ly the tenacious secretion flowing from fresh fistulæ presents the roperties of the healthy juice, is erroneous. Instead of the canula, nly the ends of a looped lead wire were introduced into the duct. has long been known that the secretion is induced by, or creased during the act of digestion. M. Bernstein found that uring fasting no secretion occurred, but that the flow was abund-nt during the first hour after ingestion of food, attained its maxi-um in the course of the second or third hour, then underwent an crease, rose to some extent during the fifth, sixth and seventh ours, and gradually fell to the fifteenth hour, when it altogether eased. The two periods of increase are obviously the result of eflectoral nerve excitation coinciding with the entrance of the ood into the stomach and intestine. Smaller variations of irregu-r amount were observed, and, as was noticed by Weinmann and Bernard, complete suppression occurred during vomiting. This ffect is not due to any mechanical influence, since it begins with he mere disposition to vomit. Irritation of the central extremity f the divided pneumogastric suppressed the secretion for a long ime. Irritation of the peripheric extremity was without effect, as vas also simple division of the vagus. The secretion of the pan-reas thus appears to be subject to two opposite nervous influences, oth of which proceed from the stomach. In subsequent experi-nents, the nerves distributed to the pancreas accompanying the rteries were all divided, the effect produced was a persistent flow f healthy juice, the gland was rosy, and sometimes œdematous. Poisoning with woorara caused a great increase in the quantity of he secretion. The dry residue of the juice obtained varied from 1.68 to 5.39 per cent., the amount varying with the rapidity of the discharge.—*Brit. and For. Med. Chir. Rev.*, Jan. 1870, from *Centralblatt*, Oct. 9th, 1869.—*Amer. Jour. Med. Sci.*

Removal of Enlarged Tonsils.—Dr. A. Ruppaner, of New York, has published an article in the "Medical and Surgical Reporter," November 20th and 27th, 1869, in which he highly recommends Morrell Mackenzie's London paste for the removal,

without cutting, of chronically enlarged tonsils. Lewin, of Berlin; Fournie, of Paris; Elsberg, of New York; and others, had used chromic acid and other escharotics for destroying the hypertrophied tissues. Mackenzie introduced, five or six years ago, a mixture of equal parts of caustic soda and lime, for the same purpose. He proposed the name "London paste" for this escharotic in contradistinction to "Vienna paste;" and it has been widely adopted and gives general satisfaction. Dr. Ruppaner relates 12 cases, and states that he has "on hand the memoranda of no less than 123 cases operated upon, in none of which its employment was followed by any unfavorable consequences." "A quantity of equal parts of finely pulverized and well mixed caustic soda and unslacked lime is kept on hand. When an application is to be made to the tonsils a little of the powder is put into a small porcelain cup, a few drops of absolute alcohol are added, the two are carefully mixed with a glass rod (and not made too thin nor too thick, so that it neither runs nor becomes lumpy,) and the paste is ready for use."

Instead of the apparatus devised by Mackenzie for applying the paste, Dr. Ruppaner uses a glass rod of sufficient length—a very good and remarkable suggestion, as a glass rod is more simple and far more manageable than Mackenzie's instrument, except, perhaps, in very irritable mouths.—*Half-Yearly Comp.*

Anointing in Infantile Disorders.—Dr. H. Guard Knaggs says in the "Lancet": During the past eleven months I have been testing with uniformly successful results, the value of a very simple method of treating such infantile complaints as atrophy, bronchitis, convulsions, diarrhœa, feeble disturbances generally, and indeed all disorders of childhood which are accompanied by an unnatural state of the skin. The treatment simply consists in smearing with salad oil the whole surface of the body, from the crown of the head to the tips of the fingers and toes, the process being repeated every twelve, six, or even four hours, according to the urgency of the case. Of course the use of a long flannel gown or small blanket is obvious, and the fluid should be slightly warmed. The application of oil possesses the following immense advantages over the ordinary warm bath:—

1. Skin-action is more completely and permanently restored.
2. The danger of reaction is avoided, for there is no sudden

nge of temperature; and, moreover, the sheet of oil protects surface from the atmospheric influences.

. It acts as a fuel-food, not only preventing waste of tissue, but ually increasing the bulk of the little patient.

It does not depress, but, on the contrary, appears to exhilarate. t will scarcely be credited by many that the formidable affec- ns above mentioned will frequently yield to this treatment, or at rate show signs of abatement in from twenty minutes to four- l-twenty hours; but such is the case; though sometimes forty- ht or even seventy-two hours will elapse before any decided ns of improvement occur.—*Med. and Sur. Reporter.*

Organic Matter in the Breath.—The now well-known ammonia ocess of Wanklyn, Chapman, and Smith is doing good service in ious ways. In the hands of Dr. Ransome, of Manchester, it s furnished a means of measuring the nitrogenous organic matter isting in the breath in health and disease. From the account of experiments in this direction, read by Dr. Ransome to the terary and Philosophical Society of Manchester a short time o, we gather the following: The total quantity of organic atter passing out of the lungs in the space of twenty-four hours, e subject being in a state of health, is about three grains. In sease the organic matter varies considerably; in health it is toler- ly constant in quantity. On the other hand, the free ammonia the breath is very variable even in healthy subjects. One of the ost interesting results given by Dr. Ransome is the fact that a rge quantity of organic nitrogenous matter is thrown off by the ngs in kidney diseases, especially in Bright's disease. A defi- iency of organic matter was observed in cases of catarrh, measles, nd diphtheria.—*Lond. Med. Times and Gazette.*

Quinia.—Dr. Adolph Martin confirms Binz and Scharrenbroch's onclusions as to the power of quinia directly to arrest the inflam- natory process by checking the vital amæboid movements of the white blood-corpuscles, and he has shown that it prevents the actual passage of the corpuscles through the vascular walls in inflamma- tory conditions, whether given subcutaneously or applied directly to the part. Quinia also hinders the generation of new white cor- puscles, and restrains the dilatation of the vessels. Hence its use

as an antiphlogistic by reducing all the visible factors of suppurative inflammation, and the explanation of its use in certain pathological conditions, such as typhus, leukæmia, &c. (*Practitioner*). Binz also asserts (*Virch. Arch.*, xli.) that quinia is a powerful antiseptic, more so even than arsenic, both when locally applied or administered internally in septicæmia.

Helmholtz, who was subject to "hay-fever" for twenty years, has found in his own case that vibriones of a peculiar sort occurred in the secretion of his nose, and under the influence of Binz's experiments he injected a solution of quinia (1 to 750) and the troublesome symptoms of hay-fever disappeared directly. Next year (1868) as soon as the illness showed itself he again injected the quinia, and the development of the disease was suppressed.—*Practitioner—Dublin Quart. Jour. Med. Sci.*

On Forced Flexion of the Limbs in Traumatic Hemorrhage.—Dr. Adelmann, of Dorpat, quoted by "L'Imparziale," strongly advocates this practice, which he considers has, unfortunately, fallen into oblivion. He quoted numerous authorities in support, such as Nelaton, Anslaux, Formey, Malgaigne, Klotz, Hyrti, Vidal de Cassis, and cites a case of his own where forced flexion of the hand in the forearm and the latter on the arm arrested hemorrhage from a wound in the ulnar artery. Dr. Adelmann thinks that such flexion should be had recourse to before other hæmostatic means are employed; that this practice should be made known among the people at large, so that it might be used before the arrival of the surgeon; and that soldiers in the field should be made acquainted with it.—*Lancet.*

Pyæmia.—The most recent theory has been promulgated by M., Alph Guerin, at the Academy of Medicine of Paris. Hitherto pyæmia had been considered as the result of an absorption of decomposing secretions, or of phlebitis. M. Guerin disputes this mode of development, and proposes a theory founded upon analogy and clinical observation. He thinks pyæmia is a kind of typhus, a surgical typhus, excited by miasmatic emanations. Ague, says the author, is engendered by marsh miasmata, purulent infection by animal miasmata. M. Guerin, it will be seen, is inclined to shake the fetters of mechanical theories, which hitherto have reigned supreme as regards pyæmia.—*Lancet.*

Treatment of Rheumatic Fever by Perchloride of Iron.—The aked effects of tincture of perchloride of iron in such diseases as yysipelas and diphtheroid sore throat had induced J. Russell eynolds, M. D., F. R. S., London, to try it in acute rheumatism -which agreed with the others in coming under the class of spreading" inflammatory affections. He had given it in eight ases, with such success as would justify a further trial. Having ven brief histories of the eight cases, he directed attention to cer-ain points: 1. The relief of the joint affections was definite, niform and speedy. In four cases it was removed in one day; nd the longest period of suffering after the commencement of the eatment was five days. 2. Excluding one fatal case with cere-ral symptoms, and another where there was intercurrent pneu-nonia, the temperature became normal between the second and ne seventh days; the mean duration of pyrexia being a little ess than five days and a half. 3. Excluding again the two ex-eptional cases already mentioned, the total duration of rheumatic ever from the outset varied from seven to fifteen days, giving a nean of ten and a half days. 4. The earlier the iron was given, he shorter was the duration of the disease. No headache or other ymptoms of discomfort was produced by the iron.—*British Med. Journal.*

Dr. Charlton Bastian states, in a letter to the "Times," that he nas made experiments which he believes go far towards the settle-nent of the vexed question as to the possibility of a so-called "spontaneous generation" of living things. He says that he has come to the conclusion that organisms are to be met with in her-metically-sealed vessels from which all air has been removed, and after the contained fluids have been raised to a very high temper-ature. He will shortly submit to the Royal Society a full account of his experiments. The letter we are quoting is a criticism on Professor Tyndall's arguments for the germ theory of disease, which Dr. Bastian urges are only good on the assumption that the low organisms, usually associated with putrefactive stages, spring up *de novo* without parentage.—*London Medical Times and Gazette.*

EDITORIAL.

THERE is no subject that demands a more careful consideration by the profession than that of medical education. Conventions of teachers have met to discuss it; committees have been appointed to report on it again and again, and we are none the better for it. We have schools of one session, and of two sessions; high fee schools, and low fee schools; schools selling their diplomas through regularly established agencies to the highest bidder—irrespective *of* qualifications or character, and the profession is overrun with graduates of all grades of ignorance and stupidity. Our fathers tell us that the time was, when a diploma was worth something—when at least a respectable amount of learning was a prerequisite to the title of Doctor of Medicine. A superficial inspection of the graduating classes of any of our schools will show that now, neither brains nor industry are necessary for attaining their highest honors. We regret that it should be so. It is a humiliating confession to make, and yet we hold that it is better to tell the truth plainly, and meet the question fairly. We have many colleges in the country with able corps of teachers, abundant clinical material, and all the requisites for teaching, and where students can, and do, get a very thorough knowledge of their profession, if they are capable and ambitious, *but one*, within our knowledge, where the diploma amounts to much more than a certificate of attendance upon a certain number of lectures, and the payment of a certain sum of money. And yet, as obvious as is the wrong, as patent as is the cause, how hard to find the remedy? As long as there is competition between the schools only in the size of their

respective classes, and not, as should be, in the intrinsic worth of their diplomas, teachers may meet and discuss remedies forever, without arriving at practical results. We have no faith whatever that unanimity of action on the part of the schools is to bring us relief. We deem it utterly impossible to ever gain our object through legislative action of the individual States—they are too many, and of too diverse interests and sentiments ever to act in sufficient harmony. We do not see how it is possible for the great body of the profession to deal practically with the subject. Medical journals can do little to remedy the matter, as they are often but the organs of certain schools, and are of different opinions as to the manner of attaining the desired results. To our mind there are but two plans that appear feasible. One is, for some one or two of the schools to adopt a high standard and hold to it, irrespective of the course of others; to make their diplomas something more than mere certificates of lecture attendance, and trust that their higher value will attract the better classes of students, and that in time, their reputation will become established, and give their graduates better standing with both the profession and the public. It is questionable whether either of the colleges will have the nerve to attempt so hazardous an experiment, or the firmness to adhere rigidly to the standard it may adopt, in face of the strong temptations that would beset it. To be content with small classes for some years to come, and have arrayed against it the influence of the hundred other schools, would require a courage that we know not where to look for. We are sure, however, that such an attempt would enlist the sympathy of a large and influential class of practitioners, and the active support of all independent journals. For one, we shall certainly hail such an enterprise, if honestly undertaken, we care not in what section, or by whom inaugurated. If this plan cannot be successfully carried out, we can see but the alternative of

asking Congressional legislation, either in insisting oon sme uniform scheme of medical education in all of the States, or in founding one or more national schools endowed with such privileges that the individual schools, cannot compete with them, and with the object of a gradual suppression of these latter. We know that this suggestion will meet with great opposition, and coming as it does from a source where State sovereignty doctrines have always been held with pertinacity, is liable to grave misconstructions. Nevertheless we hold it as the only alternative, and feel free to confess that if the tendency of the Government must be towards consolidation, we see but few things to which centralization offers so little that would be obnoxious, and few in which it could accomplish greater good.

THE late annual convention of the Medical and Chirurgical Faculty of Maryland, in the number of delegates, and its unanimity of action, proves an awakened interest in medical and ethical matters that we trust will abide and increase.

The constitution and by-laws of this Society are better adapted, in many respects, for a healthy and useful life, than those of any similar organization within our knowledge. In addition to the regular annual and semi-annual conventions, provision is made for special meetings, at which lectures shall be given by members appointed by the Lecture Committee. These have been held during the past winter, twice a month, and several very interesting and instructive addresses delivered.

What should be the most important feature, however, are the sections upon anatomy, surgery, etc., into which the Faculty is divided. It is expected that each section—to which five members have been appointed as a nucleus—shall meet once a month, to hear papers read and discuss appropriate subjects. If these are properly managed they

n be made to accomplish a great deal that will be credit-
le to the Society, and the State. The advantage they
ll have over local societies lies in the fact that their work
in a more circumscribed field, and will consequently be
a more positive and definite character. It is to be earn-
ly hoped that they will be speedily organized, and put
working order.

We shall from time to time give reports of the proceed-
gs of the Faculty, and its sections, embracing the more
eresting of their transactions.

THE Medical School of the *University of Maryland* will
nd as delegates to the Teachers' Convention, in Washing-
n, Prof. F. Donaldson; to the convention to revise the
S. Pharmacopœia, Prof. S. C. Chew; to the American
edical Association, Profs. C. Johnston and J. J. Chisolm;
om the Hospital, Profs. R. McSherry and F. T. Miles.
ne *Washington University* sends, to the Teachers' Con-
ntion, Prof. C. W. Chancellor; to the convention to revise
e Pharmacopœia, Profs. J. E. Lindsay and H. L. Byrd;
the American Medical Association, Profs. Martin P.
ott and John F. Monmonier; from the Hospital, Profs.
dward Warren and John R. Page; from the Dispensary,
of. Joseph E. Clagett and Dr. Thos. P. Temple.

WITHIN the past few weeks that scourge of the profes-
on, typhus fever, has cut down, in the dawn of their career,
vo of the most promising of the recent graduates of the
niversity of Maryland, Dr. S. T. Knight, Jr., and Dr. W.
Dorsey. These two gentlemen, the one at the Infirm-
y, the other at Bay View, were but completing their
udies at the bedside, where they contracted the disease.
would certainly seem justifiable and right, in view of the
eat mortality, to forbid young physicians sleeping in hos-
itals where typhus is prevalent.

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HALF-YEARLY COMPENDIUM OF MEDICAL SCIENCE. Part V. January, 1870. Philadelphia: S. W. Butler, M. D.

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OPERATION OF VESICO-VAGINAL FISTULE WITHOUT THE AID OF ASSISTANTS: WITH A VIEW OF THE RELATIVE MERITS OF THE CLAMP, INTERRUPTED SILVER AND BUTTON SUTURES. By Nathan Bozeman, M. D. New York: D. Appleton & Co. 1869.

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REPLY TO DR. LEWIS A. SAYRE'S REVIEW OF DR. RUPPANER'S CASE OF LARYNGO-TRACHEOTOMY. To which is added a full account of the great poisoning case by partridges at the Fifth Avenue Hotel. By A. Ruppaner, M. D., etc. New York: D. Appleton & Co. 1870.

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A PRACTICAL TREATISE ON THE DIAGNOSIS, PATHOLOGY AND TREATMENT OF DISEASES OF THE HEART. By Austin Flint, M. D., Professor, etc., etc. Second edition, thoroughly revised and enlarged. Philadelphia: Henry C. Lea. 1870.

THE
Baltimore Medical Journal,
A MONTHLY RECORD OF
MEDICINE AND SURGERY.

VOL. I. JUNE, 1870. No. 6.

ORIGINAL COMMUNICATIONS.

CHLOROFORM—PRO AND CON.

BY PROFESSOR N. R. SMITH.

IS THE question yet settled whether the introduction of anæsthetic agents in surgical practice is, after all, a blessing to mankind, and a safe and useful adjuvant to surgery? I am aware that many will regard the mere suggestion of this question as heretical; but surely the disastrous results from the employment of the powerful agent, chloroform, have been recorded in a sufficient number of instances to justify the query.

The question which I discuss is not whether chloroform may not be so employed as to be a useful agent; but whether, employed as it is and has been, it has been productive of more good than evil.

When we subject to a painful operation a patient whose constitution, and the state of whose nervous system, are favorable to the salutary effects of chloroform, and when, on the administration of that agent, we see what would otherwise be a painful operation accomplished without the infliction of the least suffering, the operator himself exults

in the possession of such an agent, and the unprofessional bystanders are filled with astonishment and admiration.

To such an extent have the happy effects of chloroform been extolled by the profession, that it is not surprising that the public generally should be inspired with unqualified confidence in the agent. This confidence is the more readily accepted because the mind is so willing to adopt that which promises so much. When the transfusion of blood was introduced and practiced in Europe, with the promise of restoring youth to age, the public mind was wonderfully excited. Hundreds offered themselves as the subjects of the experiment, and many deaths resulted from the practice. The governments of Europe were obliged to interfere and forbid the practice.

Now I wish it to be understood, *in limine*, that I employ chloroform in surgical practice, and shall continue to employ it. I merely wish to point out many of the evils resulting from its use, with the hope that those evils may be, in a degree, avoided.

Not the smallest of the evils arising from the use of chloroform results from the overweening confidence of the public in its efficacy and its safety. They are, therefore, unwilling to submit to the most trifling operation without being placed under its influence, when, perhaps, the administration of the anæsthetic is a far more perilous matter than the operation itself.

The profession are well aware that the deaths from the use of chloroform, even in the hands of scientific men, amount to hundreds, and, if all the cases were truthfully reported, probably to thousands. Men have died from its influence who have, on former occasions, breathed it with impunity; many have perished from it who labored under no organic or functional disease which would seem to forbid its use.

But it is not alone by the sudden extinction of life that

loroform is productive of bad results. The secondary ects of it must by no means be overlooked. It is a ave question, which, perhaps, can not yet be satisfactorily swered, does chloroform contribute to the successful issue surgical operations? The great object of the surgeon is cure his patient. If he can accomplish this without the liction of pain, so much the better; but the great end is *cure his patient*, pain or no pain. If the use of an æsthetic diminish the probability of his recovery, it is ıdoubtedly to be rejected.

Are surgical operations as happy in their results as they ere before chloroform was introduced? Since anæsthetics ere introduced, which is some twenty-five years, if I mis-ke not, I have constantly employed them in very exten-ve surgical practice, and, although I have not kept such curate records of my cases as would enable me to make ıt statistical tables, I think I can conclusively compare e results of operations under chloroform with those erformed without it. I therefore confidently say, that the sastrous sequlæ of such operations have been more com-on when chloroform has been employed. The first dis-trous result to which I allude is secondary hemorrhage.

It is well known that both chloroform and the ethers ıbdue the force of the circulation, especially in the smaller rteries. Reaction does not fully come on in many instances r hours. After an amputation, or the extirpation of a ımor, the larger arteries bleed, and we secure them. We ait a reasonable time for reaction. The pulse, perhaps, ndicates that it has resulted, and, anxious to place our atient in a condition of comfort, we, after again carefully earching for bleeding vessels, close the wound and apply ur dressings. After the lapse of four or six hours we are ummoned to our patient on account of bleeding. When ve arrive we find that there has resulted a reactive excite-nent in the heart and arteries. The patient has lost a

considerable amount of blood, and, what is not less mischievous, the wound is distended with coagulum, and great irritation caused thereby. Indeed, the painful distension is one cause of the continuance of the hemorrhage.

To arrest the hemorrhage we are now obliged to open the wound, turn out the coagulated blood, and secure the arteries. This is an operation not less painful than the primary one, and, on account of the condition of the patient, more productive of irritation. But the loss of blood thus incurred, and the irritation and renewed shock, are not the only evils resulting. Notwithstanding our efforts to cleanse the wound of blood, much will remain adherent, and will have penetrated the tissues. The exposure of the wound to air favors the putrefactive process in the blood retained, and, when suppuration results, the sanies produced enters the circulation, and ichorrhæmia is the consequence. Whether we term this pyæmia or ichorrhæmia, it can not be doubted that it far more frequently results where secondary hemorrhage occurs and the wound becomes stuffed with blood. The impairment of the vital powers, caused by the loss of blood, contributes to the same result.

I appeal to all surgeons whose observations have extended over the period of half a century passed, as mine have done, to say whether pyæmia has not been far more common, as the fatal issue of surgical operations, than it was before chloroform was introduced? Has not this form of disease occupied far more of the attention of surgeons than it formerly did? Does not this frequent sequel of surgical operations at this time fill the minds of surgeons with dread? Does not the fact that far more has been written about pyæmia, since chloroform was introduced, than ever before, give evidence of its more frequent and fatal occurrence?

There are other modes in which the use of powerful

næsthetics promote this pyæmic condition. The agent powerful enough to make such an impression upon the system as to make it insensible to the pain of a formidable operation, must very powerfully influence the functions of the nervous system, and morbidly modify them. The constitution of the blood must also be more or less modified.

But there are cases in which surgical manipulations are practised in which incisions and the loss of blood are not involved—as, for instance, those employed in the treatment of dislocations and of strangulated hernia.

In the reduction of the hip and shoulder a double advantage is obtained by the use of chloroform. We not only obviate pain, but we overcome the rigidity and resistance of muscles which otherwise often render our efforts ineffectual. Here there is no danger of pyæmia, and the most formidable objection to the use of chloroform does not obtain.

The same may be said in regard to its employment in promoting the reduction of strangulated hernia. Here we may carry its influence to a greater extent than where the powers of life may be expected to be reduced by loss of blood.

I have recently reduced the femur in two cases, dislocated upward and backward on the ileum, employing chloroform, using only the force of my own hands. The process was by manipulation as taught and practised more than half a century ago by my father, Prof. N. Smith. It consisted in flexing the thigh forcibly on the pelvis, carrying the knee toward the opposite hypochondrium, then strongly abducting the thigh, and suddenly extending both thigh and leg. The reduction was effected in a moment.

In employing chloroform to promote these reductions its effects must be carried far enough to cause complete relaxation. Carried to a certain degree—not complete—there is produced a spastic rigidity of the muscles which renders reduction far more difficult.

I should by no means keep out of view the great advantage derived from the use of chloroform in the execution of those operations—on the eye, for instance—which require that the patient should be completely passive and non-resistant. The most resolute can not refrain from a degree of struggle when an exceedingly sensitive organ is touched by an instrument. Here also the effect of chloroform must be complete or the effort of the partially insensible patient is more uncontrollable than ever. In all these cases, however, in which it must be carried thus far, the risk of fatal results is increased.

Nor should I neglect here to speak of the advantages derived from anæsthesia in cases of nervous and timid persons who would refuse surgical operations but for the confidence which they place in chloroform. Not only are their fears allayed, but their nervous systems are fortified against shock.

THE THERAPEUTICS OF TUBERCULOSIS.

READ BEFORE THE BALTIMORE MEDICAL ASSOCIATION BY PROFESSOR H. R. NOEL.

THERE are many diseases of which it can be said that, "prophylaxis is eminently the true therapeutical indication," and prominently in this class I would place cholera, variola, syphilis, and tuberculosis.

As regards the last named, this is specially true, since errors of hygiene play so marked a part in the etiology, and those errors are so well known and so admirably described by all writers upon this lesion. There is, however, one grand error—one great cardinal mistake—in our therapeutics, and it depends upon a false etiology, clearly traceable to Laennec and the French school. It is thus stated by that school, through its representative, Lebert, viz: "And the popular saying, that the neglected catarrh leads to consumption, is false."

This fallacy of the French has been inoculated into the American school, and crops out in the following statement made by Dr. Austin Flint, of New York, viz:

"The great object of the treatment, therefore, is the removal of this constitutional morbid condition, or cachexia." "Measures addressed to the pulmonary affection are of secondary importance;" or, in other words, you must control the specific or tuberculous diathesis or cachexia, and local troubles, catarrhs and pneumonias, are harmless should this "specific cachexia" not be present. This idea is "the *fons et origo mali*" of American practice, and depends upon the fallacies in pathology and etiology which I have already refuted.

In a former paper I distinctly denied that the morbid anatomy, pathology or etiology, gave one particle of support to the theory of "the specific tubercle corpuscle and specific diathesis;" a thorough and subtle analysis of all adducible evidence proved the position untenable—utterly so.

Now, if we fully comprehend that there is no mysterious and unknown "specific diathesis" under which to conceal our errors of diagnosis and our ignorance of true hygiene, I think we shall be in a far better position for truly scientific investigation and for a rational therapeutics. We shall scrutinize more closely the laws and conditions of health; we shall watch more closely the errors of hygiene; we shall appreciate at their true value the neglected catarrhs, bronchial and pneumonic lesions; histories of families and antecedent histories of cases will be more accurately examined, and all possible information elicited.

The French school, with its theory of "specific diathesis," has retarded the study of tuberculosis equally as much as Laennec's discoveries in ausculation, etc., advanced it. To-day it is a subject of grave doubt whether Laennec has advanced or retarded the literature and true knowledge of phthisis,

and whether the doctrines of Broussais will not yet be those upon which a final solution of this problem will depend.

Prophylaxis.

The laity are practically much wiser in this respect than the followers of the French school, and we often hear this terse account of the origin of a case of consumption: "He took a deep-seated cold, and it fell on his lungs, and he died of consumption." This short epitome of the case contains the wisdom derived from practical experience, and is worth all of the theory you can bring to bear upon it;—it is worth more than all of it, for it contains the true germ of a rational prophylaxis, in its condensed etiology. A deep-seated cold—a neglected catarrh—a bronchitis—a pneumonia possibly, and a final tuberculosis.

Never neglect a catarrh—a bronchitis—a pneumonia—a pleurisy; always attack them as enemies; always treat them as the advanced skirmishers of phthisis pulmonalis; watch them carefully, and see that they are not permitted to become chronic; and watch also the patient, and see that he takes better care of himself.

If possible keep your delicate patients shielded from local irritants to the bronchial membrane; avoid dust, crowded assemblies, over-heated halls and places of amusement; avoid club-rooms with their hot, foul air, tobacco smoke and too free use of spirituous liquors; avoid cramping and half bent positions while at work; avoid draughts from windows, and especially while mentally occupied, and working the nervous and not the muscular system.

Aitken says: "It is now almost an axiomatic truth, that of of all things which deteriorate the constitution on the one hand, and influence pulmonary congestion on the other, none are so detrimental as impure and deficient air, together with frequent variations of temperature, and changes from sudden heat to chilling cold." Therefore, the healthiest persons should be on their guard against such conditions,

the delicate should be warned that persistent exposure to such is but little short of chronic suicide.

Delicate girls with a bad family history, and with but little muscular development, pale lips, thin semi-transparent skin, and no strength; great nervous impressibility and irregular menstrual functions, are often patients, and they require a vigilant eye to prophylaxis. Such patients, if permitted, will frequent crowded rooms, heated theatres and saloons; dance night after night with bare neck and arms; eat ices, and stand in windows and door-ways to cool off; wear thin shoes and satin slippers; lace tightly and keep late hours; eat pickles before retiring, and eat desserts instead of dinners the best portion of the time; take no regular systematic exercise, but by sudden impulse will walk to sheer exhaustion one day, and not leave the house, except for ball-room or theatre, for a week afterwards. These cases last from 2½ to 5 seasons, and then drop off with tuberculosis.

The end is inevitable, unless an inflexible prophylactic order of prohibition be stringently enforced.

Their mothers as a rule—(if they have any; for often the mothers have traveled the same route, and wound up a short life by tuberculosis)—cannot be relied upon, and unless daily or weekly inquiries be rigidly made, and the advice given dogmatically insisted upon, these cases will disobey after a few weeks, and your trouble will be for nothing.

I make it a point of practice to inquire after these cases at every possible chance, and to remind them of their instructions quite often. Should a sharp catarrh fortunately supervene in the Fall or early Winter, while the mother is frightened, and daughter yet penitent, I invariably order flannel thick, with high neck and long sleeves, and always feel gratified that I should have been able to meet some of the indications; for this precludes bare necks and bare arms, and protects against sudden cooling off.

I also give the most careful orders as to the diet. Frequently it is best to leave written directions every month, forbidding any dessert, candies or pickles, and urging the free use of milk, eggs, oysters, poultry, with mutton chops and underdone beef.

The directions as to exercise should be explicit and frequently urged. Regular walking daily; the walk at first of only a few squares, but in a few months it can be made as many miles almost, with advantage. Finally, for such cases, 11 P. M. or 11½ is the utmost limit to be permitted in the parlor.

Scorfulous and Delicate Children.

Here prophylaxis is to cure the scrofula, and as scrofula may be congenital or acquired, the treatment and prognosis vary somewhat.

Congenital Scrofula.

From syphilitic, tubercular, scrofulous, or very delicate or very enfeebled parents, and in most cases a rather intractable form, and one prone to culminate in tubercular meningitis in infancy. Passing that period we come upon a youth of swollen glands, sore ears, sore eyes, &c., moist eruptions of various kinds, rachitis, hip-joint disease; also extreme vulnerability, with a tendency to extravagant effects from slight causation, and a chronic and adynamic type of nearly all troubles.

These cases having passed the youthful period uncured and unchecked in their vitiated habit, furnish a rich harvest for the *tubercular lesions and phthisis pulmonalis.* The child should not nurse a diseased mother; a healthy wet nurse is by far preferable; goat's milk is preferable to cow's milk for such cases; but cow's milk is far superior to artificial foods. My own experience with artificial foods has been limited, I am glad to say, for it has been strikingly disastrous, and I regard them as little better than infantile curses, and their use as scarcely more than a euphemistical

way of gradually starving a child; it is certainly a very sure way of laying a remarkably good foundation for scrofula.

Fresh milk in abundance, cleanliness, pure air, sunlight, exercise, attention to the digestive organs, and flannel next to the skin, with careful protection against cold, sudden changes, draughts, &c., are the indications to be rigidly enforced.

Acquired Scrofula.

From improper nourishment, a coarse and insufficient diet in infancy and in early youth; want of fresh air and exercise; animal effluvia and bad ventilation; want of cleanliness and an insufficient clothing, with exposure to cold. In this class of cases we can really prevent scrofula by attention; and should it be already inaugurated we can, to a great extent, relieve it by a prompt change of external relations and judicious hygiene. In either form of the disease the prophylaxis is to cure the scrofula as soon as possible, and eradicate the tendency to "excessive corpusculation," for upon this tendency the future tuberculosis will, to a great extent, depend.

Treatment above given is applicable here also, and I think it always well to caution a mother in case of a "vulnerable" or scrofulous child, that a scarcity of flannel and an excess of cold linen is the worst possible arrangement as regards clothing. If the scrofulous tendency be very strongly marked, or vulnerability very great, crowded school rooms are bad—very bad—and, at any rate, from three to six hours are sufficient; daily confinement for this class of patients is in itself an error, and should be most carefully watched.

To send such children to school and compel them to remain in close, heated rooms, and at the same time overwork their nervous system, and then at home permit all sorts of errors of diet, exercise and hygiene generally, is

but to prepare them for a miserable puberty and a premature grave—usually the death is by phthisis pulmonalis.

The correct treatment is to watch the child, and if it begins to flag, emaciate, &c., insist stubbornly upon its immediate removal from school, and give it all possible exercise.

This process of close confinement and overwork is carried from the primary into the higher schools, and we find seminaries and colleges have a dark record as regards tuberculosis. I can recall some dozen or more of cases where a vulnerable constitution, being submitted to this accursed forcing process of our higher schools, acquired tuberculosis, and strange to say, I have found phthisis florida and acute miliary tuberculosis to be the usual forms. In some two or three of these cases the disease, in its incipient stage, resembled so much remittent and typhoid fever, that it was at first next to impossible to make a satisfactory differential diagnosis.

A cardinal error had been committed in ever allowing these vulnerable cases to attend such schools. You will find them often remarkably bright, and they cram their heads with college information, and lungs with tubercles equally fast.

"*The Scrofulous Habit.*"

I desire to call especial attention to an extract from Niemeyer's "Text Book of Practical Medicine." It is there given as a quotation of Canstatt; speaking of the division of scrofula into "The Torpid" and "The Erithitic Habit," Canstatt describes the two. "The Torpid Habit" as having "An unusually large head, coarse features, a thick chin, swollen abdomen, enlarged cervical glands, and flabby, spongy flesh." You may add on Niemeyer's authority, "a thick lip, swollen nose, heavy expression, greasy skin, and general sluggishness of both the constructive and destructive processes."

"The Erithitic Habit" has, "A skin of remarkable whiteness with a tendency to redden easily, and through which the rose-pink, or bluish subcutaneous veins are visible; a deep redness of the cheeks and lips, and a blueness of the thin and transparent selerotica; muscles soft and slight, bones light and small; teeth are handsome and of a blueish lustre, though long and narrow; the hair is soft."

These are typical examples of the two forms, but we often have them shading off into each other so gradually as to render classification difficult and annoying.

Both forms have a tendency to moist eruptions during youth—an impressed tendency to an excessive corpusculation; it is apt to be rapid, and often ulcerative in the erithitic; it is slow, insidious, chronic and intractable in the torpid form, and often more of fibrous hypergenesis.

Having made the distinction between torpid and erithitic forms, I wish to again invite attention to the fact that there is a wide difference in the therapeutics of the two. The fresh air, sun light, the out-door exercise, milk diet, and careful attention to the bowels and skin belong to the therapeutics of each; but in a fair specimen of *torpid scrofula* you will find cod liver oil perfectly useless; no amount of it, no preparation of it, does the slightest good, and in by far the majority of cases it does serious harm. I have given it until the skin was absolutely thickened and unctuous, and got only a bad form of dyspepsia and biliary derangement as my reward.

I now *never* give cod liver oil in the torpid form, but I do give the alkaline and ferruginous preparations, often with pure infusions of quassia, gentian, &c. I never give tinctures in such cases. I also give iodine and iodide of potassium with good results in some instances; also Vichy, Kissengen, Bedford, and Gettysburg waters, and have obtained fine results in such cases, but especially from the use of the Vichy.

In the torpid form there is delayed histogenesis, and greatly retarded histolysis, and hence I often prescribe those remedies which promote rapid metamorphosis, and have been greatly delighted with their action; they increase the moulting, and the repair is more rapid. I have found a bitter infusion and hydrochloric acid to be an excellent combination where there is deficient appetite, and in some instances pepsine after meals has given good results. Sluggishness of the bowels and constipation are often complications, and I have found the saline aperients and cathartic mineral waters are admirably adapted. The Saratoga Excelsior Water appears to be about the best I have ever tried in such cases; and I have known cases of torpid scrofula greatly improved by a summer at those springs.

In cases of torpid liver, inactive and thick skin, darkened complexion, &c., I have seen the Hot Springs of Bath County, Virginia, and then afterwards a month at the Greenbrier White Sulphur, produce astonishing results.

Erithitic form: A rapid pulse, thin skin, great sensitiveness of the nervous system, and too rapid histolysis, with a peculiar brightness and clearness of the complexion. In these cases cod liver oil is the remedy, with cream, eggs and tonics; tinctures in good doses, quinia, iron, strychnia, dilute phosphoric acid and hypophosphites. In the erithitic form the patients bear well the tinctures, and often improve under whisky, ale, porter, &c.

These are the cases most amenable to treatment, and yet most liable to glandular inflammations and suppurations, with extensive ulcerations of skin, and great complication of the adjacent connective tissue.

I would urge the point that to such patients iodine is usually an injury, and the whole medication is nearly the opposite of the torpid form.

As regards mineral waters in this form, I esteem the Rockbridge Alum Springs, Va., as incomparably superior

to any other; for the moist eruptions, ozœna, otorrhea, bronchitis, &c., of this class it is as near a specific as anything I have ever seen tried.

Glandular Enlargements.

The glandular enlargements of the two kinds are somewhat different; in the torpid form they enlarge slowly, many are involved near each other, show a very indolent character, and are as prone to fibrous tissue hypergenesis as to excessive cell hyperplasy; they rarely suppurate, rarely ulcerate, unless after great enlargement and compression; can be readily and easily extirpated without much risk of after results, or much after trouble in the form of secondary inflammation, &c. In the erithitic form the glands enlarge much more rapidly, have a stronger tendency to acute inflammation, suppuration and ulceration; all the processes are more rapid, and extirpation, as a rule, is not followed by such favorable results. Both forms, if unmolested, are apt to lead in maturer years to phthisis or some form of tuberculosis. The indication, therefore, is, *cure in youth.*

At the very beginning of our therapeutics it would be well always to investigate closely the family history, and also to examine the patient's individual history with special reference to errors of hygiene; often the general surroundings of a patient are such as to neutralize the most scientific and most judicious therapeutics. As an illustration, you will find that in many families the departure of the physician from the sick room is the signal for a general gathering of the household in that room, and the patient is discussed for hours, and the physician also. In the meantime their powerful lungs are literally exhausting the patient's life by consuming the oxygen, heating the air, charging it with carbonic acid and foul organic impurities of respiration. No medication, however accurate; no attention, however faithful, can counteract this vile error. Children are generally

the victims, and you will find "vulnerable constitutions," whether from an inherited or an acquired scrofula, are most subjected to this kind of treatment, from the fact that they are more liable to be sick, and are sick longer, and hence their room becomes a sort of general resort. Here you will find, if the patient be an adult or near it, a systematic retailing of all similar cases in the vicinity, and you will also find the patient distracted by the number and varied character of the prescriptions which friends have seen cure just such cases.

Nor is this all, for very often the recital embraces a careful synopsis of all the fatal cases of a similar character which have been accumulating for a quarter of a century, and the depressing effect is one which few can describe but all can appreciate. I do most emphatically denounce this custom as a relict of a barbarous age, and as one of the "errors of hygiene," a species of "domestic nuisance," and one to be most summarily abated as "morally depressing," and therefore to be classed in Laennec's and Aitken's category of "Mental Depression" as a predisposing cause of tuberculosis.

The scrofulous habit, torpid and erithitic, is to be treated and if possible, eradicated; the patient is to be watched, and as far as practicable, all errors of hygiene are to be corrected, and a rigid course of most exemplary physiological conduct insisted upon.

It will not do to palliate or temporize in the case of scrofulous children; the action should be prompt and decisive; but first we should weigh well the surroundings and all of the collateral influences, and having thus obtained sufficient and accurate data, make a positive and definite statement of the exact requirements of the case, and inflexibly adhere to them. A correct hygiene is better than therapeutics. Open air, exercise, sunlight and relief from mental and physical labor are better than any sort of medication.

Therapeutics Proper.

In by far the majority of cases the physician does not see the patient in the incipient stage, but is called in after a well-marked cough, loss of flesh, appetite, and strength, have warned the friends that this is something more than a mere catarrh; or, perhaps a sharp hemorrhage first puts the patient on the alert for pulmonary trouble.

Having settled the diagnosis, and decided upon a tuberculosis, treatment proper begins, and in this treatment enter the following elements for examination:

1. The family history, and patient's antecedent history.

Should there be a bad family history, and a bad individual history, the most prompt and rigid hygiene, and the most careful medication are indicated, and should be strictly enforced.

2. The patient's appetite and digestive power should be interrogated, and their condition accurately estimated.

3. The daily habits and occupation should also receive careful attention.

4. The patient's present condition physically, and the probable amount of local lesion.

5, The idiosyncrasies and probable stamina, and recuperative power.

6. The station in life, and pecuniary resources.

The day laborer, the poor clerk or accountant, and the moneyed merchant may require, but cannot receive the same hygiene and medical treatment. Now as regards treatment, I place a change of occupation, relaxation of mind and body, exercise and out-of-door life, as immeasurably superior to any treatment by medication, however good; and where the patient is seen in time, and this can be done, it should be persistently urged until adopted. I do not think a physician can insist too strongly upon this; and if, after the most earnest persuasion the patient should refuse to comply, should refuse to make this change in his

life, "his blood be upon his own head." You can then turn to the strictly medical treatment; and I candidly confess, that if I can trace in the patient a "vulnerable constitution inherited or acquired," or if I find distinctly marked evidences of either the "torpid" or "erithitic form" of scrofula, and this patient refuses the advice above given, I turn to the medical treatment with sad forebodings of evil, and warily withhold my prognosis until I am compelled to give it.

However, we may prevent the evenings' being spent in the heated, steaming, tobacco-reeking club and bar-rooms, or in crowded theatres, or over-heated parlors and libraries. We can urge an early return from business, especially where flush comes on in the afternoon; we can recommend daily exercise, and the greatest possible daily relaxation from business and largest possible amount of out-door life.

Where the family and individual histories are good, with no taint or acquired vulnerability, and the case can be diagnosed as one of caseous transformation of inflammatory products, with a fair animal physique and good muscular power, I think that even with the refusal to quit business, t is not to be estimated as such a very bad case, and we have grounds for hoping ultimately to effect a complete restoration of health.

"*Richardson's Hygienic Code.*"

Dr. Richardson, in a work on the "Hygienic Treatment of Pulmonary Consumption," gives the following admirable hygienic code?

I. A supply of pure fresh air for respiration is constantly required by the tuberculous patient.

II. Active exercise in the open air is imperatively demanded.

III. It is important to secure for the patient an uniform, sheltered, temperate and mild climate to live in, with a temperature of about 60°, and a range of not more than

10° to 15°; where the soil is dry, and the drinking water pure and not hard.

IV. The dress of the tuberculous patient ought to be of such a kind as to equalize and retain the temperature of the body.

V. The hours of rest shonld extend from sunset to sunrise.

VI. In-door, or sedentary occupation must be suspended; but out-door employment in the fresh air, even in the midst of snow, has been, and may be advantageous.

VII. Cleanliness of body is a special point to be attended to in the hygienic treatment of tuberculosis.

VIII. Marriage of consumptive females, for the sake of arresting the disease by pregnancy, is morally wrong and physically mischievous.

IX. The medicinal treatment must be adapted to the site of the local deposits, and the general nature of the particular case.

Dr. Aitken commenting upon the above code, says: "Medicine is utterly powerless and useless unless the hygienic means now insisted upon are carried out to the utmost."

Commentary upon the above by myself is not required. I could not possibly add to, and would not detract from this most excellent and condensed Hygienic Code.

I have one suggestion only: Where the patient is able to afford it, never be satisfied to let any consumptive remain in Baltimore, under any promise to take sufficient daily exercise and relaxation from business, *for he won't do it.* Make him quit business and leave town, and forbid business letters while absent.

The selection of a Winter residence is extremely important, and the feelings of the patient furnish the proper data. If the patient bears cold well, reacts well, and is usually better in Winter, the cold dry climate of Minnesota will suit

for both a Summer and Winter resort. If he should be habitually chilly, and reaction slow and imperfect, a mild dry climate such as Aiken, S. C., Georgia, Western Texas, Mexico and Lower California are best adapted to his case; and central Florida has also warm advocates. But to send a patient to Florida, and permit him to fish upon the St. John's river, or its tributaries, is to give him a "*moist* climate," which, whether warm or cold, is of all things the one most to be deprecated.

Moisture is to be shunned, and a dry equable climate is best; a climate which permits the patient to be out of doors a great deal. It is always well to advise hunting, or some kind of diversion, or geological, botanical or other out-door studies, as the season may suggest.

If a patient is nervous, timid, dependant, lacking in courage and fortitude, easily depressed, and does not possess the powers of resistance to apparently adverse surroundings, and does not contain within himself the resources necessary for enjoyment among strangers, it is useless to send him off; he will only be the more miserable, and die the sooner from mental depression. And it is especially bad to send such persons to a "favorite consumptive resort," for they will see so many phases of the disease, and be so prone to look upon the darker aspect of the subject, that a few weeks will most effectually disgust, and often materially injure them.

Wherever they may be sent, let them be adequately impressed with the idea that they are sent to this or that place because of the amount of out-door exercise they can take, and because of the purity of the air; not simply because it is a warmer climate, or a colder climate. The out-door exercise, and change of surroundings are the great facts that we desire to obtain.

In the incipient stage, and especially in the "*torpid* form" of constitution, salt bathing, and often a sea voyage

will accomplish a great deal. The benefit is often of the most marked kind, and especially in men of business when they are sent on a two or three years' cruise, where letters are seldom seen. Their whole habit of life is broken in upon, and the over-worked system has time for rest and recuperation. Relaxation of mind and body, daily exercise in the pure bracing air upon the deck of a vessel, and the excitement incident upon arrivals at foreign ports and visiting foreign countries, will usually prevent lethargy and depression from homesickness.

Medicinal, &c.

There are several material points which we should at once settle as satisfactorily as possible; they give us the following indications:

1. Improve the appetite and digestive power.
2. Improve the secondary assimilation or nutrition.
3. Allay cough, fever, nervousness, restlessness and insomnia.
4. Restore the tone of the nervous system.
5. Promote the action of the skin and kidneys.
6. Promote the regular action of the bowels.
7. Check diarrhœas, bronchorrhœas, hemorrhages, &c.
8. Check the softening and promote the absorption of the already formed tuberculous matter; prevent further formation.

I. *Improve the Appetite and Digestive Power.*—I do not think any one will question the value of gentian, quassia, cinchona, &c., for this purpose; in the erithitic form and its varieties, I use the tinctures and elixirs; in the torpid form I use the simple infusions, and often combine a mineral acid with them, especially the hydrochloric; I give usually large doses, and push the medicine well.

If there should be flatulence, oppression after meals, and slow digestion, &c., subnitrate of bismuth and pepsine 10 grs. each, and a drop or two of creasote, will be useful. If

much acidity, I use "chlorate mixture" for a palliative, and push the bitter tonics before, and bismuth and pepsine after meals.

Gentian, quassia, cinchona, &c., in tincture or infusion, mineral acids, pepsine, bismuth, creasote and occasionally the antacid, are the remedies I most employ.

II. *To Improve the Secondary Assimilation or Nutrition.* For this purpose there seem to be no agents superior to quinia, strychnia and arsenic, with various preparations of iron, and I have obtained most excellent results by combining them; but in the "torpid form," or in any case where you can detect positive evidence of a delayed histolysis, and a general clogging of the glandular system, the preparations of iodide of potassium and iodine, and even a course of ten days upon Vichy or other kindred mineral waters will be found to be an admirable prelude to the use of the above remedies. From some experiments tried, I would recommend arsenic, iodide of potassium, and iodine with iron in the torpid form, and quinia, strychnia and iron, with porter, ale, or even whisky, in the erithitic form. When there is rapid waste, quinia and whisky are especially indicated, as are also the fats, oils, cream, milk, eggs, &c. In the erithitic form cod liver oil usually acts finely, and gives most happy results; in the torpid form *it* is worse than useless, it is absolutely injurious. In cases where the form is doubtful, iodine, or iodide of potassium should be combined with it at first, and its action closely watched. The erithitic requires the fats, oils, &c., the "torpid form" requires milk, nitrogenous food and vegetables; the former will bear well and improve under alcohol; the latter is injured, or, at any rate, not improved by alcohol until the last or wasting stage comes on. In the rapidly wasting stage the treatment is the same.

III. *To allay Cough, Fever, Nervousness and Insomnia.*— Niemeyer recommends for the cough the balsams, resin,

senega and squills, with some mild opiate, especially if chronic and there is much expectoration; if acute, with some congestion of bronchial membrane, he recommends the alkaline muriatic mineral waters, or alkaline mixtures approximating. In chronic cases he uses opium regularly and freely.

Dr. P. C. Williams recommended to me, and I used with admirable success in two cases, bromide of potassium 15 grs., creasoti 2 gtt., and mint water oz. ss.; an infusion of senega might, in chronic cases, substitute the mint water. Hydrocyanic acid, chlorodyne, pure morphine, McMunn's Elixir, and Squibb's Tincture of Opium, I have also used with more or less advantage.

The fever, as Niemeyer asserts, is best controlled by quinia grs. 2 to 5, digitalis ½ gr., opium ½ gr., with rest in bed if the fever is high. He advocates rest to protect the lungs, and give the least possible work. You can often add strychnia to the above with advantage. The dose is given four times a day, until the pulse falls and skin cools.

Nervousness and Insomnia—Controlled by the bromide, opiates, Hoffman's Anodyne, and valerian; sometimes by large doses of strychnia, but the drug should be carefully watched; 1-24 to 1-12 of a gr., two or three times a day, if the patient will stand it, will often quiet nervousness where opiates cannot be given. One day's trial is usually sufficient, but I have pushed it for two or three days before tetanic symptoms manifested themselves.

IV. *Restore the Tone of the Nervous System.*—For this purpose I think strychnia or nux vomica, with the hypophosphites of lime, soda and potash and iron, are by far preferable. Often quinia may be usefully combined with the nux vomica or strychnia. Winchester's Hypophosphites, or Andrews & Thompson's, have usually been prescribed, the latter having iron, which the former has not, will give it the advantage in most cases. Dilute phosphoric

acid in from 15 to 20 drops thrice daily, has also given good results. Tinct. cinchona oz. ss., and acid 3 ss., in very bad cases, is a favorite prescription, "ter die."

The syrup of the phosphates of quinia, strychnia and iron, and the aromatic cod liver oil with hypophosphites in a solution of glycerine, are two preparations by Sharpe & Dohme, and are superior to anything of the kind I have ever seen. Their combined action in two extremely bad cases was most satisfactory and encouraging, and I most cordially recommend them to the profession. Their use must be continued for some time, watching carefully the effects and reducing the doses as may be indicated, or increasing them as the case seems to require.

In all forms of nervous depression or exhaustion, I use the phosphoric acid, strychnia, nux vomica and hypophosphites, but, in tuberculosis I prefer always, if possible, to use the two preparations of Sharpe & Dohme, either alternately or in conjunction. They deserve a fair trial.

V. *To Promote the Action of the Skin and Kidneys.*—The flesh brush freely used, salt baths, exercise in open air daily, and a great deal of it; flannel next to the skin, and to avoid all draughts and currents, will best accomplish the desired result as regards the skin. An abundance of water between meals, or Vichy or other mineral water will keep up the action upon the kidneys; infusions of uva ursi, buchu, &c., alone, or in combination with bitter infusions, are often useful for a time where absorption of tuberculous products and elimination by the kidneys is desired; their action should be carefully watched and judiciously facilitated.

VI. "*To Promote the Action of the Bowels.*"—As stated before, (in torpid form and the incipient stage of scrofula,) Saratoga water, and especially the Excelsior Spring is an excellent cathartic. In some, forms where there is an extremely torpid constitution, or in one which has run the

gauntlet of drenching with whisky and over-drugging with cod liver oil, this water acts most effectively. It at once starts the partially arrèsted histolysis, increases glandular action, and prepares the system for the reception of other remedies. In this form small doses of strychnia, long continued, will often give increased peristaltic action. In the erithitic form, rhubarb, aloes, colocynth and podophyllin when required, combined with the extract of hyoscyamus are best, or simple enemata.

VII. *To Check Diarrhœa, Bronchorrhœa, Hemorrhage, &c.* For diarrhœa Chambers recommends prompt action, and gives coffee, haematoxylin and opium, as by far the best and most speedy remedies. I have seen pulv. gallae 10 grs., and pulv. opii. ½ gr., thrice a day, check a most intractable mucous diarrhœa. Where pus appears in the stools and there are other evidences of atonic ulceration, copper and opium usually give best results; turpentine or even rosin in pill form is often beneficial in such cases. The diarrhœa is exhausting, and should be at once checked.

Bronchorrhœas—Ext. ergotæ fluid gtt., xii., ter die, and the stimulating expectorants, as senega, squills, and the resins and balsams; also the alkaline chalybeates are of great benefit in this condition; gallic acid in 5 gr. doses four or five times a day, and gum opium in pill form, I have seen do good service combined. The syrups and demulcents are useless here. External counter-irritation, inhalations of iodine, tar, balsams, &c., are beneficial.

Hemorrhage—Absolute rest in bed if violent, cold applications to the chest, cold air in the room, ice held in the mouth and swallowed, salt in teaspoonful doses, opium to allay nervous tremor, and vegetable astringents, or lead and opium, &c.; 20 gtts. acid sulph. arom.; 10 grs. gallic acid and morphine gr. ⅛, every few hours, is very good; also, turpentine repeated every three or four hours. Keep room and patient quiet; forbid his talking much for a week.

Profuse Perspirations.—Mineral Acids—Tr. of iron, quinia and strychnia—My friend, Dr. Williams, agrees with Tanner in attributing great efficacy to oxide of zinc in 4 or 5 gr. doses. He also recommends highly, strychnia in 1-32 gr. doses, and under his administration I witnessed some excellent effects in a most severe case. The dose was 1-32 of a gr. every four hours.

VIII. *To Check Softening, Promote Absorption and Prevent Further Formation.*—The astringent preparations of iron and alum combined with diuretic remedies are best. Vegetable astringents are not as reliable, though very good. The astringent element is required to control the increased capillary circulation around the mass and prevent a new formation or peripheral accretion. The preparations of iodine and iodide of potassium are good agents to promote absorption. "To prevent further formation" must be the result of improved hygiene, improved appetite, improved digestion and improved nutrition from richer and stronger blood.

This last indication, therefore, embraces several of the preceding, and is, in fact, the grand indication in the therapeutics of tuberculosis. Softening gives rise to secondary bronchitis, cough, night sweats, profuse expectoration, ulceration and cavern formation, and also tends to extend the tubercular mass.

The tendency to bronchial congestion, bronchial hemorrhage, bronchorrhœa, &c., consecutive upon softening of the tubercular mass, and the general hectic or constitutional disturbance incident upon the elimination of even a small mass, are usually sufficient, if uncombatted, to extend the disease and cause decided induration in the tissues surrounding. As a rare occurrence, now and then a distinct membrane circumscribes sharply the periphery of the mass, and as the mass is expectorated a *sac* remains, or a distinct cavity, which may shrink and contract on itself, and eventally present only a white corrugated fibrous cicatrix,

or the mass may be directly absorbed and eliminated by the kidneys, &c., as oxidized products with no secondary bronchial trouble, no softening, no ulceration, no expectoration, no hectic fever, no constitutional disturbance. To thus check softening, check bronchorrhœa, determine absorption, and at the same time give a good diuretic action and improve the appetite and nutrition, I esteem the mineral water of the Rockbridge Alum Springs, Virginia, as incomparably superior to anything I have ever seen tried.

In conclusion, I would state as the great facts to be remembered:—

1st. That hygiene is superior to therapeutics.

2d. A good digestion or a fair digestion is the "sine qua non" of medical treatment.

3d. Correct assimilation or nutrition proper, is the next step.

4th. To control the fever as soon as possible.

5th. To control the harassing cough.

This extremely annoying feature of the disease is often most intractable and exhausting.

(Belladonna, atropia, morphine and creasote, the bromides and inhalations are the best palliatives.)

6th. Support the nervous system as directed above.

There are no specifics for consumption, and the indiscriminate administration of cod liver oil and whisky is just upon a par with 10 grs. of calomel and 10 grs. of jalap for every furred tongue. They have become professional *placebos*—masks for inattention and neglect; masks for errors in diagnosis and therapeutics; a kind of "conscience salve" for letting a patient die *because* we hav'nt the *time* to accurately work out his case. Cod liver oil will not cure even the erithitic form, though it is here a good remedy, and in the torpid form it is usually an unmitigated evil.

MEDICAL SOCIETIES.

AMERICAN MEDICAL ASSOCIATION.

The twenty-first annual meeting of the American Medical Association was held in Washington, commencing Tuesday, May 3d, and lasting through Wednesday, Thursday and Friday.

The Convention was called to order at 11 A. M., the President, Dr. George Mendenhall, of Ohio, in the chair, about four hundred members being present.

The Committee of Arrangements reported the usual programme of invitations, etc.

The Committee on Credentials reported adversely to the admission of the delegates belonging to the National Medical Society of the District of Columbia, which excluded all the representatives from that Society, as well as those from the American Academy of Medicine; Howard University Medical School; Alumni Association of Georgetown College, and the three city hospitals, on the ground that the National Medical Society was acting in direct opposition to the Code of Ethics—the question of color having nothing whatever to do with the subject.

Dr. Reyburn submitted a minority report, protesting against the admission of delegates from the Medical Society of the District of Columbia, and favoring the admission of those from the National Medical Society of the District of Columbia—several individual protests being also entered upon either side.

On motion of Dr. N. S. Davis, of Illinois, the whole subject was referred to the Committee on Ethics.

Dr. Lewis A. Sayre, Chairman of the Committee on Ethics, stated that he wished the controversy between himself and Dr. Ruppaner, of New York, referred to a special committee for investigation and report.

Dr. N. S. Davis moved that the Chair appoint, at once, the Committee on Ethics for the ensuing year, to which Dr. Sayre's case might be presented, as also those of the District of Columbia societies. Carried; and the Chair appointed the following as the Committee: Alfred Stillé, of Pennsylvania; N. S. Davis, of Illinois; J. N. Keller, of Kentucky; H. F. Askew, of Delaware, and J. J. Woodward, of the U. S. Army.

The President read the annual address, reviewing the history of the Association, and the influence it had exerted on the profession. The address was referred to the Committee on Publication.

The various committees for the past year then reported.

Dr. T. Antisell read an interesting paper on Veterinary Colleges, which was, on motion, referred to the Committee on Publication.

A recess of five minutes was taken to allow the States to appoint members of the Nominating Committee, which being announced, the Convention adjourned.

Second Day.—The Convention was called to order by the President, at 9.30 A. M.

Dr. S. D. Gross, of Pennsylvania, suggested that on the evening of the third day of each annual convention, a social reunion should be held, and made a motion to that effect; and that a committee should be appointed to make arrangements for a dinner at the Arlington House, to-morrow (Thursday) evening, at 8½ o'clock; which was carried, but was subsequently reconsidered and amended so as to apply to subsequent meetings, but not to the present.

Dr. Stillé, of the Committee on Ethics, made a partial report, recommending the admission of all delegates from

the Massachusetts Medical Society to this Convention, but stating that the charges against that Society, of admitting improper persons to membership, were well founded, and advising that hereafter no delegates should be received from it unless it purged itself of the offense. Adopted.

The Secretary read a paper charging Dr. C. C. Cox with violating the Code of Ethics, among other things with influencing members of Congress to revoke the charter of the Medical Society of the District of Columbia.

Dr. Cox denied the charges, and stated emphatically that he had never approached a member of Congress on that subject.

The matter was referred to the Committee on Ethics.

Dr. Loomis moved that all the delegates claiming admission from the District of Columbia be admitted. Lost—yeas 107, nays 142.

Dr. C. C. Cox, of Maryland, moved that until the report of the Committee on Ethis should be made, *no* delegates of the District of Columbia should be admitted. Carried.

Dr. F. G. Smith, of Pennsylvania, made a report from the Committee on Printing. Adopted.

The Secretary submitted the annual report of the Treasurer, which was referred to the Committee on Publication.

Dr. Reyburn, of the District of Columbia, read the report of the Librarian.

Dr. Sayre, Chairman of the Committee on Ethics for 1869, moved that all papers in the hands of that committee be referred to the newly appointed committee, and that his committee be discharged. Carried.

Dr. J. J. Woodward, from the Committee on Medical Literature, made a report, which was referred for publication.

Dr. C. C. Cox reported from the Committee on Medical Necrology. Referred for publication.

Dr. Moore, of Missouri, offered a resolution on the sub-

ject of lecture fees, establishing a minimum price for all colleges etc., which led to much discussion, and was finally laid upon the table.

Dr. Collins, of Massachusetts, offered a resolution, "that the charge for life insurance should not be less than five dollars." Adopted.

Dr. D. A. O'Donnell, of Maryland, moved that a committee of three be appointed to report on the evil of abortion. Passed.

The Committee on Nominations reported the following officers for the ensuing year:

President—Alfred Stillé, of Pennsylvania.

Vice Presidents—J. S. Wetherly, of Alabama; Henry Gibbons, of California; J. T. Hurd, of Texas, and Samuel Willey, of Minnesota.

Assistant Secretary—J. C. Tucker, of California.

Treasurer—Casper Wistar, of Pennsylvania.

Librarian—F. A. Ashford, of the District of Columbia.

Committee of Arrangements—A. N. Sawyer, Chairman.

Committee on Publication—F. G. Smith, Chairman.

Committee on Prize Essays—T. M. Logan, H. Gibbons, H. H. Toland, Beverly Cole, and Cooper Lane, all of California.

Place of Meeting—San Francisco, California. Time, first Tuesday in May, 1871.

Dr. Stillé submitted a report from the Committee on Ethics, advising that Dr. C. C. Cox be admitted as a delegate from Maryland.

Dr. Keller, from the same committee, read a minority report, recommending that Dr. Cox should not be admitted.

The majority report was adopted. Adjourned.

In the evening the Association visited the Army Museum, and listened to two most interesting addresses from Drs. Otis and Woodward, of the U. S. Army, on "Excision of Joints," and on "Micro-Photography."

Third Day.—The Convention was called to order at 9.30 A. M., the President, Dr. Mendenhall, in the chair.

Dr. Keller reported from the Committee on Ethics that the committee would be unable to examine and report upon the case of Dr. Sayre, of New York, and returned the papers for the action of the Association.

Dr. Sayre asked that a special committee should be appointed, instructed to report upon the case at once.

Dr. E. Lloyd Howard, of Maryland, objected that it would be unfair to force a committee to report upon the controversy between Drs. Sayre and Ruppaner, only having Dr. Sayre's papers from which to form an opinion, as Dr. Ruppaner was neither present nor represented.

Dr. Murphy, of Ohio, moved that the whole case be referred to the New York Societies. Carried.

Dr. Ninian Pinckney, U. S. N. (sent last year as a representative of the Association to the Societies of Great Britain), made a report of his visit. Referred to the Committee on Publication.

Dr. F. G. Smith, Chairman of the Committee of Nomenclature of Diseases, submitted a report with resolutions, advising the adoption of the new nomenclature prepared by the Royal College of Physicians of London. The report gave rise to an interesting discussion, and was finally adopted.

Dr. C. C. Cox offered a resolution for the appointment of a special committee, to request of the Surgeon General of the Army the privilege of copying the micro-photographic slides of Dr. Woodward, to be prepared under the direction of the committee, and distributed at a reasonable price to the medical societies of the country. Adopted.

Dr. Antisell offered a resolution of thanks to the Surgeon General for the interesting exhibition and lectures of the previous evening, and strongly commending Drs. Otis and Woodward for their successful labors in the cause of science. Adopted.

Dr. C. C. Cox offered a resolution of condolence with the family of the late Alden March. Adopted.

Dr. Steine, of New York, offered a resolution that State and county authorities be requested to aid in the establishment of Veterinary Colleges in each State. Adopted.

Also, that Veterinary Surgeons be appointed to the army with the rank of full Surgeons, and also in the Agricultural Department.

Dr. Otis offered as a substitute, the appointment of a Veterinary Surgeon to the Agricultural Department, with suitable salary, and striking out the clause relating to the army. Carried.

Dr. H. R. Storer, of Massachusetts, submitted on behalf of the Gynæcological Society, a resolution to rescind the action of the Association last year, prohibiting the insertion of the cards of specialists in journals.

On motion of Dr. Howard, of Maryland, the resolution was tabled.

On motion of Dr. Mussey, of Ohio, it was resolved that the clause in the by-laws which provides that each alternate meeting of the Association be held at Washington, be repealed, and that in future it shall be determined at each annual meeting where the next shall be held. Adopted.

Dr. Kerwin, of Pennsylvania, read a report on the treatment of the insane, which was referred for publication.

Dr. White, of New York, offered a resolution that the Medical Schools of the country be requested to establish Chairs on Mental Disorders. Adopted.

Dr. N. S. Davis submitted, on behalf of the majority of the Committee on Ethics, the following

REPORT.

It appears that the matters reported to your Committee of Registration, and so much of the action of the majority of same committee as relates to the same subjects, embraces the three following subjects:

1. A charge that the majority of the Registration Committee had refused to register the delegates presenting credentials from several societies, colleges

and hospitals in the District of Columbia which claimed the right to representation.

2. Direct charges against the Washington Society and the Medical Association of the District of Columbia, accompanied by a protest against the admission of delegates from those bodies.

3. Direct charges, which had been lodged with the Committee of Registration, against the National Medical Association of the District of Columbia, accompanied by a protest against the registration of delegates from that society and from such other institutions as were supplied with medical officers who were members of that society.

In regard to the first charge, your committee find on investigation that the Registration Committee have duly registered all the delegates from all the medical institutions claiming representation in the District of Columbia in accordance with the usages and by-laws of the association, except the Medical Society of the Alumni of Georgetown College, the National Medical Society, the Howard Medical College, the Freedmen's Hospital, and the Smallpox Hospital, these being the institutions included in the charges already mentioned in the third specification

It remains, therefore, only to consider the second and third specifications, and your committee ask leave to report on these separately. In relation to the second we unanimously recommend the following resolutions:

Resolved, That the charges offered by Dr. Reyburn, as a minority of the Committee on Registration, against the Medical Society and the Medical Association of the District of Columbia, are not of a nature to require the action of the American Medical Association, the first charge referring to a duty imposed on the society by an act of Congress, and the second referring to a matter which does not come in conflict with any part of the code of ethics.

Resolved, That so far as relates to the Medical Society of the Alumni of Georgetown College, it has been shown to us that the society has sixty resident members, and is therefore entitled to six delegates instead of one, as requested by the committee.

In regard to the third proposition relating to the National Medical Society, Howard University Medical College, the Freedmen's Hospital, and the Smallpox Hospital, we recommend the following:

Resolved, That the duties of the Committee of Arrangements, so far as relates to the registration of members, is purely clerical, consisting in the verification of the certificates of delegates and a report on the same. If credentials in proper form are presented from any society or institution possessing such form as would place it *prima facie* in the list of institutions enumerated in the constitution of the association as entitled to representation, but against which charges have been made or protests presented, the names of the delegates presenting such credentials, together with the charges or protests in the possession of the committee, should be presented to the association for its action.

Resolved, That the charges lodged with the Committee of Arrangements against the eligibility of the National Medical Society of the District of Columbia have been so far sustained that we recommend that no member of the society should be received as delegate at the present meeting of this association.

N. S. DAVIS,
H. F. ASKEW,
J. M. KELLER.

Dr. Alfred Stillé, of Pennsylvania, then submitted the following as a

MINORITY REPORT.

The undersigned, members of the Committee on Ethics, while subscribing to the greater portion of the report of the majority, feel it their duty nevertheless to dissent from the final resolution recommending the exclusion of the members of the National Medical Society of the District of Columbia from the present meeting of this association; they offer, therefore, in lieu of that resolution, the following:

Whereas the institutions excluded from representation by the action of the Committee on Credentials, viz: The National Medical Society, the Howard Medical College, the Freedmen's Hospital, and the Smallpox Hospital are regularly organized as the constitution of the association requires; and whereas, the physicians so excluded are qualified practitioners of medicine, who have complied with all the conditions of membership imposed by the association; and whereas, in the judgment of the undersigned, no sufficient ground exists for the exclusion of such institutions and physicians from this association; therefore,

Resolved, That the institutions above named, are entitled to representation, and that the physicians claiming to represent them are entitled to seats in the American Medical Association.

ALFRED STILLE,
J. J. WOODWARD.

Great excitement was shown at the conclusion of the reading of the reports, and several motions offered, when finally a motion was made to accept the minority report as a substitute for the majority. Pending its discussion a motion was made to lay the minority report on the table, on which the yeas and nays were demanded and taken, and the minority report was tabled by a vote of 107 to 85. The majority report was then adopted, when a call for the yeas and nays was made, and the convention, in confusion, adjourned.

Fourth Day.—The convention met at 9½ o'clock, the President in the chair.

Dr. J. J. Woodward moved that the resolution offered by Dr. Cox yesterday, and adopted, in reference to the micro-photographic slides, be rescinded; which being done, he offered as a substitute a resolution, that the Surgeon General be requested to authorize Dr. Woodward to prepare and distribute the slides. Adopted.

A discussion arose on the propriety of admitting dele-

gates from the Women's Hospital of Philadelphia, and after much debate the whole matter was indefinitely postponed.

Dr. Palmer, of Maine, wished to know of the majority of the Committee of Ethics their reasons for rejecting the delegates of the Howard Medical College.

Dr. N. S. Davis said if the committee would be allowed to give their reasons in writing they would have no objection to doing so. There being no objection to this course the committee retired.

Dr. R. J. O'Sullivan, of New York, offered a preamble and resolution relating to apothecaries, who are accustomed to repeat prescriptions without authority. Referred to a special committee.

Objections being made by Surgeons of the Navy to parts of the report of Dr. Ninian Pinckney, read yesterday, as doing injustice to the corps, the report was reconsidered, and the whole subject referred to a special committee.

Dr. Hartshorne, of Pennsylvania, offered a resolution to amend the Constitution, so as not to exclude women from membership. Laid over, under the rule.

A resolution declaring Dr. Horace Wells the discoverer of Anæsthesia was adopted.

Dr. John Sullivan, of Massachusetts, offered the following:

Resolved, That no distinction of race or color shall exclude persons claiming admission to this Association, who are duly accredited thereto.

Dr. Sullivan proceeded to address the convention on his resolution, and, after many interruptions, obtained a hearing.

At the conclusion of Dr. Sullivan's remarks Dr. N. S. Davis presented the following

REPORT OF THE COMMITTEE ON ETHICS.

In reply to the resolution of the association calling upon the majority of the Committee on Ethics for the reason why they in their report excluded the delegates from the Medical Department of Howard University, they respect-

fully state that there is nothing in the report which directly excludes the delegates from the said university, or any other medical institution in the District of Columbia, except the National Medical Society.

The resolution on this subject, reported by the committee, is in these words:

Resolved, That the charges lodged with the Committee of Arrangements against the eligibility of the National Medical Society of the District of Columbia have been so far sustained that we recommend that no members of that society should be received as delegates at the present meeting of the association.

It will be seen that the only parties excluded from admission as delegates at the present meeting are the members of the National Medical Society. If the Medical Department of the Howard University had chosen to send any delegates who are not members of that society, there is nothing whatever in the report to prevent their being received. In the papers referred to your Committee on Ethics were a list of charges with specifications in the usual form, against the registration of the National Medical Society. These charges may be clearly stated as follows: 1st. That said National Medical Society recognizes and receives as members medical men who are not licentiates, and who are acting in open violation of sections 3, 4 and 5 of the law of Congress, constituting the charter of the Medical Society of the District of Columbia. 2d. That a large part of the members of the National Medical Society are also members of the Medical Association of the District of Columbia, and are openly and freely violating the rules and ethics of the association to which they have subscribed. 3d. That they have both in its capacity as a society and by its individual members misrepresented the action of the Medical Society and the Medical Association of the District of Columbia, and used unfair and dishonorable means to procure the destruction of the same, by inducing Congress to abrogate their charter. Each and all these charges were, in the opinion of the majority of your committee, fully proved by the members of the National Medical Society themselves, who appeared voluntarily before your committee as witnesses. Therefore, if we have any regard to the maintenance of the laws of the land or the ethics of our medical organization, the undersigned could not come to any other conclusion than was expressed in the last resolution recommended by the majority of the Committee on Ethics.

Much excitement followed the reading of this report, and Drs. Reyburn, Loomis, Antisell, Johnson, Busey and others, of the District of Columbia, gave their statements of the questions at issue; Dr. Johnson reading a letter from Senator Patterson, in which Dr. C. C. Cox was charged with having urged Senator Sumner to have repealed the charter of the Medical Society of the District of Columbia. Dr. Johnson also charged Dr. Reyburn with having made wilful misrepresentations on the same subject. A

most undignified personal discussion was being carried on, which was finally brought to a conclusion by Dr. N. S. Davis, who was called temporarily to the chair.

The question recurring on Dr. Sullivan's resolution, it was, on motion of Dr. Howard, of Maryland, laid on the table by a vote of 106 to 60.

Dr. H. R. Storer, of Massachusetts, then offered the following:

Inasmuch as it has been distinctly stated and proved, that the consideration of race and color has had nothing whatever to do with the decision of the question of the reception of the Washington delegates: And, inasmuch as charges have been made in open session to-day, distinctly attaching the stigma of hishonor to parties implicated, which charges have not been denied by them, though present; therefore,

Resolved, That the report of the majority of the Committee of Ethics be declared, as to all intents and purposes, unanimously adopted by the Association.

The preamble and resolution were adopted by a vote of 112 to 37.

The Association then adjourned.

BALTIMORE PATHOLOGICAL SOCIETY.

At a recent meeting of the "Baltimore Pathological Society,"

Dr. Russell Murdoch, by way of introducing to the Society's notice an apparatus for didactic purposes, glanced over twelve cases met with in his practice, which he had illustrated by diagrams, and so arranged as to give a general and typical view of the more important optical defects met with in optical surgery, and their treatment by glasses. The instrument consists of two brass cylindrical cameras, (raised on platforms of wood, to be joined and fastened at pleasure), elevated on uprights with universal motion, and admitting, by slots, of lateral separation. The angles of

version or eversion, and coincidentally that of converg-
ıce for that of close vision, are measured by indices play-
g over movable protractors; a very important feature
the instrument. By elongating or shortening the cylin-
ers from their original and typical length, it is possible to
present every grade of the two deviations from the nor-
al eyeball in those conditions known as myopic, and
ypermetropic, and their astigmatic variations. In the
ont of each cylinder are five slips—three inside, and two
utside—of a size to admit the insertion of the lenses found
the armamentarium of all ophthalmic surgeons. In the
nterior clips are placed trial spectacles—glasses for the
orrection of errors of refraction or accommodation, pro-
ıced by lenses inserted in the internal slips; or by changes
the length of the cylinders themselves. The most pos-
erior of the three internal clips retains the permanent
ens; in the one immediately in front of this all the
hanges of accommodation and astigmatism are produced,
nd in the most anterior of the three the variations in the
ze of the irides are produced by perforated diaphrams.
t the back of the instrument is a ground glass plate, upon
hich the images of surrounding objects are thrown; a
andle flame gives the best light, and the variations of form
ı its image, as effected by spherical and cylindrical lenses,
nd its change of position by prisms are most striking;
nd its subsequent correction by lenses in the spectacle
lips in front, very complete and satisfactory. Among the
ases presented it is noticeable that both external and inter-
al Strabismus were relieved by properly selected glasses,
or prisms. A fact in the physiology of vision dwelt upon
by Dr. Murdoch is well illustrated by means of the instru-
ment, viz: "For close normal binocular vision three things
are necessary. First: The addition of greater power to
the original lens is required as the distance diminishes.
Second: A definite convergance, corresponding with the

increased lens-power, to throw the image on the centre of the retina. Third: Contraction of the pupil." Absence of either of these interferes with the distant image of the object, or with its central position. By the insertion of ophthalmoscopic pictures in place of the ground-glass plate, and using the ophthalmoscope from the front, as in actual practice, a ready familiarity with its use, and the appearances revealed by it may be acquired. If desired, the cylinders may be easily separated and studied singly.

SELECTED ARTICLES.

EMARKS ON PELVIC PERITONITIS AND PELVIC CELLULITIS, WITH ILLUSTRATIVE CASES.

BY LAUCHLAN AITKEN, M. D.

ATHER more than a year ago there appeared from the pen of a ell-known gynækologist of this city a very able monograph on e two forms of pelvic inflammation whose names head this ticle; and it cannot have escaped the recollection of the reader at Dr. M. Duncan, adopting the nomenclature first proposed by irchow, has used different terms on his title-page* than those der appellations I still propose to retain. Under these circum ances I feel compelled at least to attempt to justify my preference r the original names; and I trust to be able to show that they e preferable to, and less confusing than, any others that have as et been proposed, even though we cannot consider them abso- tely perfect.

Passing over, then, such terms as *periuterine cellulitis* or *phleg- ons periuterins* as bad compounds; others, as *inflammation of e broad ligaments*, as too limited in meaning; and others, again, s *engorgment periuterin*, as only indicating one of the stages of the ffection,—I shall endeavor as succinctly as possible to state my easons for preferring the older names to those proposed by Virchow.

1. The two Greek prepositions, *peri* and *para*, are employed omewhat arbitrarily to indicate inflammatory processes which are ssentially distinct. I say arbitrarily, because I am not aware that *ara* has been generally employed in the form of a compound to xpress inflammation of the cellular tissue elsewhere.† By those who remember that the cellular tissue not only separates the serous nembrane from the uterus at that part where the cervix and body f the organ meet, but is even abundant there,‡ perimetritis might eadily be taken to indicate one of the varieties, though indeed not

* A Practical Treatise on Perimetritis and Parametritis (Edin. 1869.)

† Paranephritis is used by Dunglinson, for instance, to express Inflammation of the Supra- enal Capsules.

‡ Aran, Lecons Cliniques sur les Maladies de l'Uterus.

a very common one, of pelvic cellulitis—a variety, in fact, for which the term perimetric cellulitis has been proposed. It is self-evident how much confusion might arise as to the real nature of a disease simply by the change of one letter of the alphabet.

2 The term *perimetritis*, even if employed only to indicate inflammation in the peritoneum, could not well be used if that inflammation were confined to the serous membrane round the tubes or ovaries. For such varieties of pelvic peritonitis we should require to adopt the terms peri-salpingitis and peri-oophoritis; thus, in my opinion, unnecessarily encumbering our nomenclature. The truth is, that serous inflammation in the pelvis is rarely, if ever, confined to the peritoneal covering of one organ; and, besides, we have no means of diagnosing it, when it is. In those facts we find other contraindications to the employment of a term so restricted in its meaning as perimetritis.

3. The preposition *para* means, by the side of, and to most Greek scholars a word like parametritis would indicate too close a proximity to the uterus to be used with correctness in a case, for example, of puerperal cellulitis* in one or other of the iliac fossæ, a difficulty which the term pelvic cellulitis to a great extent removes. But besides, the preposition *para*, according to our best Greek authorities, such as Donaldson and Jelf, is never used to indicate proximity to a person or thing, except with the idea of motion towards or by the side of that person or thing.

4. The terms pelvic cellulitis and pelvic peritonitis show to any one, at a glance, the nature of the affection, whether it is inflammation in the cellular tissue or serous membrane of the pelvis, and do not limit the seat of the disease to the immediate neighborhood of the uterus, as I maintain the words perimetritis and parametritis must do. If we keep in remembrance that the terms pelvic cellulitis and peritonitis are almost invariably employed by gynækologists when the inflammation in the pelvis arises from some kind of disease of, or injury to, the uterus and its appendages, I hold that, at least in the present phase of our knowledge of the

* I am perfectly well aware that Dr. Duncan denies the extension of a mere cellulitis etiologically parametric, as he would say, to the iliac fossa. This is a point which can only be settled by further inquiry, and especially by autopsic demonstration I can only say that I only imagine I have seen a case of iliac cellulitis ending in abscess from an injury to the uterus without any matter having formed in the true pelvis; and a case adduced by Dr Duncan himself, at p. 155 of his work on Perimetritis and Parametritis, seems to confute his theory. (See also Bernutz and Goupil, Clinical Memoirs on the Diseases of Women, translated for the New Sydenham Society by Dr. Meadows, vol. ii. p. 146.)

affections, those names can produce no confusion whatever in the mind of any one who adopts them, but must necessarily assist him in rapidly forming a conclusion as to the seat and pathology of the disease.

Up to a very few years ago the pathology of pelvic inflammation was only partially elucidated, or had been in many cases erroneously interpreted Some facts apparently well established, and, at any rate, supported by the weight of great names,* pointed to the cellular tissue as the seat of those inflammatory processes which were so frequently known to follow the act of parturition, and even to occur in the non puerperal female from many and varying causes. But as our knowledge of pathology advanced, it came to be recognized that many of those cases which had been regarded as purely extra-peritoneal were in reality affections of the serous membrane itself and the consequences arising therefrom, and that in fact, we had to deal with two perfectly separate and distinct diseases, which, indeed, might complicate each other, but of which, strange to say, the one first carefully described† was by far the most rare, and by much the least important.

It would be unjust to one of the most careful and conscientious of clinical observers, M. Bernutz, not to mention that it was principally to his researches that we are indebted for our increased knowledge of the true nature of those inflammatory processes, although I am by no means prepared to go so far as he does, and almost absolutely deny the occurrence of cases of perimetric cellulitis at all. The fact seems to be, that while the theory of inflammation of the cellular tissue in the pelvis—a theory almost universally accepted in our own country—was carried too far by the enthusiasm of Nonat in France, M. Bernutz committed an equally grave error by rushing much too blindly in the opposite direction. The truth, as it usually does, appears to lie within the extremes; and although we can easily believe that M. Bernutz has verified his diagnosis more frequently by autopsies in cases of pelvic peritonitis, it must not be imagined, on account of the rarity of such post-mortem verification, that cases of perimetric cellulitis are uncommon.

On the contrary, it may be pointed out, that the very fact of the lesion being so frequently extra-peritoneal is the reason why we so

*Sir J. Y. Simpson, Dr. Churchill, Dr. West, Nonat, etc.

†Grisolle mentions cases of circumscribed pelvic peritonitis simulating phlegmons as early as 1839, but there was really no accurate information until the work of Bernutz appeared.

seldom have an opportunity of completing the diagnosis in the way mentioned. No one can for a moment doubt that pelvic peritonitis is a much more serious and grave lesion, and one much more likely to produce a fatal issue, than inflammation of the cellular tissue of the pelvis, and of that alone; and while, on this account, we have seldom any opportunity of confirming the presence of a perimetric cellulitis by post-mortem inspection, such a case as that reported by M. Simon* goes far to prove, not only the possibility of its existence, but even the probability of its frequent occurrence.

From this short resume of the present state of our knowledge of those essentially distinct pelvic inflammations, I now turn to one or two cases which will partially serve to illustrate the symptoms to which they give rise, the treatment we ought to adopt, and the post-mortem appearances in such as terminate fatally.

Margaret H., æt. 39, married, and has had four children, was admitted into Ward XII.,† Royal Infirmary, on 6th March, 1869, on account of hæmorrhage after an abortion, which had occurred four weeks previously. For purposes of diagnosis the os and cervix were dilated by sponge-tents, and after examination the ergot of rye was given in drachm doses of the liquid extract, thrice daily. The bleeding ceased, and she was about to leave the hospital on 25th March, when she was seized with a rigor after lying in her bed with the adjacent window open. The pulse and temperature rose very considerably. She perspired very profusely after the shivering, and became delirious. She also complained of pain above the pubes. The next day, on vaginal examination, there was fulness and tenderness in the retro-uterine cul-de-sac, but nothing more. Ordered opium internally, and poulticing. On the 29th the pain was not quite so severe, and was relieved by her drawing up her knees, and thus removing the tension of the abdominal walls from a slightly tympanitic abdomen. Immediately above the pubes a somewhat hard and very tender swelling was felt, but its limits could not be made out on account of the pain. Vaginal examination proved the existence of a swelling in the posterior cul-de-sac pressing the uterus forward against the pubes, and, by combined internal and external palpation, it was found to be part of the same swelling felt above the pubes. The pulse was

* Bulletins de la Societe Anatomique de Paris, xxiv annee, p. 234.
† Under the charge of Sir J. Y. Simpson.

120 per minute. She was perspiring very much, but complained ess of the pain.

On the 6th April the swelling seemed softer, and apparently indented slightly on pressure. An exploring needle was introduceed, and as pus escaped through it, a tenotomy knife was at once employed to make incision in the most prominent part of the swelling. The cut was immediately behind the cervix, was nearly an inch in length, and through it there escaped very freely about a pint and a half of very fœtid pus. On introducing my finger through the opening, I felt what I considered to be the peritoneal recto-vaginal fold below. The swelling above the pubes still to be felt, but neither so large nor so sensitive.

I need not enter into all the minutiæ of her case given in the Ward Case-book; suffice it to say, that by the 9th April she had decidedly improved. There was little pain, and she could keep the legs stretched out in bed. The opening internally was closing, but the uterus was fixed and slightly anteflexed, and there was fulness and tenderness in the right lateral and posterior regions. By the 16th of the month there was no suprapubic pain remaining, but the uterus, though more mobile, could not be pressed without causing a shooting pain through the abdomen. The improvement continued until the 25th, when she had an attack of an epileptiform character, and it turned out she was liable to similar fits. After them she feels very drowsy, has a vacant, expressionless stare, does not answer questions put to her correctly. However, after this attack she steadily gained ground, and was dismissed on 1st May, declaring herself to be quite well, though the uterus was still pretty immobile and anteflexed, but somewhat to the left. The wound was quite healed up, and there was no discharge.

This was a highly characteristic case of adhesive pelvic peritonitis following abortion, and ending in abscess. The rapid onset of acute pain, the high degree of inflammatory fever, and the great prostration of the patient from the beginning of the attack, seemed to point to more serious mischief than simple inflammation of the pelvic cellular tissue. Still, many of the symptoms we are accustomed to find in other cases of pelvic peritonitis were wanting in this patient. As in all peritoneal affections, we often have from the commencement of the attack distressing nausea and vomiting, in consequence of which the pulse soon becomes small and quick.

Dysuria, occasionally amounting to strangury, and sometimes even leading to complete retention, in often most violent, and I have seen one or two cases in which the attacks of spasmodic pain, apparently at the internal orifice of the urethra, have been so acute as to deprive the unfortunate sufferers of all power of self-control, and to lead them to utter shriek after shriek in their agony. Tenesmus, too, is another of the most distressing of the painful symptoms present, and great pain in defæcation is almost unavoidable, from the ordinary situation of the swelling and effusion. It need scarcely be added, that all appetite is usually lost; that frequently great thirst annoys the patient, and that she lies prostrate in bed, afraid even to stir, and unable to bear the lightest pressure on the wall of the abdomen, and that sleep is but seldom obtained without the use of anodynes. If the inflammation progresses, as it sometimes does, and extends to the abdominal serous membrane, the symptoms of general peritonitis rapidly supervene, and the patients usually succumb. If, on the other hand, the inflammation remains limited, the symptoms become those of chronic pelvic peritonitis, or change into those of intra-peritoneal pelvic abscess.

Still, I do not wish to be misunderstood, nor to lead any one to imagine, because, in a typical case like the one reported, little chance of mistake can arise, that therefore we are able in every instance to make an exact diagnosis. It is only too true, unfortunately, in the present state of our gynækological knowledge, we cannot point out any single pathognomonic feature to distinguish pelvic peritonitis from the closely allied pelvic cellulitis; for even though the greater gravity of the symptoms in most cases of pelvic peritonitis cannot be denied, yet it would be highly improper to rely on such a fact for our differential diagnosis. I have seen as severe pain and other symptoms of high inflammatory action in cases of pelvic cellulitis as I have in cases in which I had every reason to suppose the serous membrane alone affected; while, on the other hand, I have been frequently convinced of the existence of sero-adhesive pelvic peritonitis, without the patient presenting such symptoms as would lead us to susgect inflammation in any part of the peritoneum. No doubt, the two affections may often be present coindently; and, in fact, I have little hesitation in saying, that I believe cases of pelvic cellulitis are very frequently accompanied by some slight peritonitis. Here is a case in point:—

"Mrs. C., aged 40, from Liverpool, residing in Lauriston Place, came under my care towards the end of March, 1869. Her previous medical history was not very good. She had been married fourteen years, and a year after marriage had a child, but did not make a good recovery, and has never felt very well since. She had been treated by various medical men; had taken a good deal of medicine, especially aperient, and had occasionally improved. She came down to Edinburgh, and was found to have retroflexion of the uterus, for which a loop pessary was introduced. She went about wearing this, although it gave her great pain; and it was only at the end of eight days after its introduction that I was again called to see her. Her symptoms were not by any means marked, the pulse not being above 100, but she could not go about on account of pain referred to the sacrum. On vaginal examination, a swelling between the vagina and rectum was discovered, painful to pressure, but not yielding any sense of fluctuation to combined rectal and vaginal palpation. The uterus was high in the pelvis, not immobile, however, at this time. The cervix was pressed close to the pubes. A few days after my first visit, I fouud her complaining of supra-pubic pain; and, on examining this region, discovered a tender swelling, which projected slightly above the pubes. Although the swelling behind the vagina was more prominent and nearer the anus, I managed carefully to pass a sound, and proved that this tumor was the fundus uteri. On the eighth day after the first examination, combined rectal and vaginal palpation showed the existence of fluid in the swelling, and I opened it freely with an ordinary bistoury through the posterior wall of the vagina. A good deal of pus escaped, and the tumor above the pubes at once disappeared. On passing my finger into the abscess, I found that it reached, in the cavity formed in the cellular tissue, nearly to the anus. The pus continued to flow for about a week, and a month afterwards she left Edinburgh, having made an excellent recovery, and declaring herself to be freer from pain and uneasiness than she had been for years. Her state then, as given in my note-book, was as follows:—'No pain from deep pressure in the supra-pubic or iliac regions. Internally, uterus pretty immobile and acutely retroflexed, but somewhat laterally towards the left sacro-iliac synchondrosis. Pain on pressing the crevix upwards, and there is still some slight ulceration of the os uteri. She eats and sleeps

well, and, though weak, is able to walk about without pain. The incision is quite healed, but there is some fulness remaining in the recto-vaginal space.'"

The situation of the cellulitis in this patient between the rectum and vagina is by no means the most common, West, in his work on the Diseases of Women, placing only 14 out of 51 cases in this position. The most common seat of cellulitis is said to be within the folds of the broad ligaments. But, even setting aside the difficulty of accurately ascertaining the exact site of those inflammatory products without a post-mortem examination, it must be remembered that Nonat, West and M'Clintock, who give statistics or offer opinions on this subject, do not sufficiently discriminate between the intra and extra peritoneal forms of pelvic inflammation, thus rendering any assertions on the point almost valueless. For similar reasons, it must be equally apparent that we have at the present no reliable information on the subject of the comparative frequency of suppuration in the two distinct forms of inflammation in the serous membrane or cellular tissue of the pelvis. Thomas, indeed, with a boldness worthy of a better cause, roundly asserts that the marked tendency to suppuration in cellulitis, is an important point in the differential diagnosis of that affection from peritonitis; but, though other authors, as Duncan, maintain that suppuration is the most common termination in cellulitis, yet no one, so far as I know, except Thomas, has ventured to draw any important inference from what is at the best a mere supposition on his part. There can be no doubt, however, that when pus has formed in the cellular tissue, it much more frequently finds an exit for itself externally than internally. The statistics of M'Clintock—though liable to correction on account of the fact just stated—seem to show that it is through one or other of the iliac regions that the puerperal cellular abscess most commonly discharges itself. But when M'Clintock goes on to express his concurrence with Dr. Bennett in the statement, that non-puerperal pelvic cellular abscesses are most frequently discharged through the rectum or vagina, I cannot help affirming that he offers no adequate proof for his belief. The passage, however, in M'Clintock's essay on the subject is so confused, that I am quite unable to make out whether he is really speaking of cellular abscesses only, or whether he does not include intra-peritoneal collections as well. "I have an opinion," says

ıcan,* "that abscesses in the cellular tissue (paramctric esses) open more frequently externally than intra-peritoneal esses (perimetric abscesses) do;" and Aran seems to be much e convinced of the truth of the assertion than Duncan is. At he states very decidedly his opinion, that intra-peritoneal esses almost never find an exit through the abdominal walls; on anatomical grounds alone, we may be fully as confident of as Aran. The fact seems to be, as Duncan has already ıted out, that the intra-peritoneal abscesses perforate the most orable viscus; and if we reflect for a moment on the most mon site of the purulent collection in those cases, it becomes lent that the rectum and sigmoid flexure are the parts of the stines into which the matter is most likely to find its way. Very om, indeed, does the perforation occur through the bladder, even more rarely through the uterus or vagina.

That suppuration is more common in the puerperal† than in other variety of pelvic inflammation—whether in the serous mbrane or cellular tissue—is a fact to be disputed by no ; and I think it also probable, that not only is suppuration ch the most common termination in such cases, but also that matter forms much more rapidly. In one patient, in whom peritonitis had been caused by exposure to a cold wind after abortion, the pus was completely matured, and the abscess dy for opening on the seventh day after the existence of fulness the retro-uterine cul-de-sac had been made out. There are one two events, too, which have been noticed by observers as more quent in the puerperal form of the disease than in any other. Clintock, for example, calls our attention to the very insidious nner in which the attacks sometimes come on; and in reference this makes the admirable observation, that in all cases of bad covery from childbed, we should carefully examine the iliac gions day by day, as he has thereby frequently been enabled to tect latent inflammation when no other symptom indicated the currence of morbid action. In making this remark he is, of urse, speaking of cellulitis, the only variety of pelvic inflammatory mor he attaches any importance to; but if we add, that in many ch suspicious cases it is absolutely necessary to have recourse to

* On Perimetritis and Parametritis, p. 160.

† Under this head, of course, are to be included the cases coming on after abortion.

internal examination, the observation is equally valuable with reference to pelvic peritonitis. Bernutz, too, notices another danger to which the puerperal patient is much more liable than the non-puerperal, when pelvic peritonitis has been developed. "The extension of the inflammation by simple contiguity from the pelvic to the abdominal peritoneum," he observes, "is especially liable to occur in cases of puerperal pelvic-peritonitis at about the end of the second week, when the patient has not taken sufficient care of herself. This happens much more frequently in hospital than in private practice." The following notes of the post-mortem examination* of a patient who died in the Royal Maternity Hospital, tend to show that this observation of Bernutz is unfortunately only too often verified:

"The patient, aged 29, miscarried at the seventh month, and was delivered of a dead child, after a labor lasting nearly forty hours. She died ten days afterwards, her symptoms all along having been very obscure, and the termination sudden. At the autopsy the cause of death was found to be general peritonitis, but the important point, as bearing on our subject, was the fact that that the posterior part of the pelvis was hollowed out into a large cavity, containing about a couple of pints of sero-purulent fluid, which had principally gravitated into the lower part of the retro-uterine cul-de-sac. This cavity was formed by the still enlarged uterus, ovaries, and broad ligaments in front and to the sides, by adhesions of the fundus uteri to the intestines above, and by the rectum and peritoneum behind. The adhesions were recent and easily removed, and the rectum and posterior surface of the uterus were covered by recent lymph. The internal surface of the uterus presented the ordinary appearance of a puerperal uterus. There was no endometritis and no inflammation in the mucous membrane of the right or left Fallopian tubes. The posterior surfaces of both broad ligaments were covered by lymph. The right ovary was much enlarged, being two inches in length. On its anterior surface, and close to the Fallopian tube, a small rounded orifice, about the size of a four-penny piece, was found. Its edges were smooth. On the lower border, another, but larger, rounded orifice existed. It was about the size of a shilling, and had ragged and everted

*The case has already been brought under the notice of the Obstetrical Society by Dr. C. Bell, and will be found at greater length in the "Edinburgh Medical Journal" for August last.

es. These two orifices communicated with each other, and the ry between was excavated out into an irregular cavity, which, ever, contained no pus "

t cannot be denied that cases similar to this have frequently urred, and it is almost equally certain, that in very many of se cases, and up to a very recent time, so much confusion existed he minds of observers as to the nature of the malady, that the ients attacked with pelvic peritonitis after delivery were supposed be laboring either under metritis, or in bad forms, under one or er of the manifold forms of that Protean disease—puerperal fever. doubt, in nearly every case of what is called puerperal fever, we e pelvic peritonitis, but this is only one of the many local mani- ations of a constitutional state On the other hand, in such a e as the one just reported, we can usually refer the inflammation same specific cause; and the existence of septicæmia, or the sence of a contagious element, do not enter into our speculation, o its origin. Thus, we see at once that it was the bursting of a ll intra-ovarian abscess, during a lingering labour, that gave to the peritonitis, which, by extending to the abdominal serous mbrane, caused the death of this patient.

There can be no doubt that all the forms of intra-peritoneal abscess, m whatever cause arising, are incomparably more dangerous n those resulting from pelvic cellulitis; and even though the tter be favorably situated for evacuation, we ought in such cases, have a constant dread of general peritonitis, and its almost ariably fatal issue, and we must use every means in our power avert such an unfortunate result. Those abscesses, it is true, are ually encysted within walls, formed either by fibrous deposit, or the matting together of two or more of the pelvic or abdominal cera; but even though such walls may be very useful in prevent- g the lighting up of a general inflammation, yet the constant oduction of matter from the newly-formed pyogenic membranes very apt to lead to the exhaustion of the patient, especially if the s has found an outlet, whether externally or internally. We ust always bear in mind, too, that the walls of abscesses formed this way are, at any rate at first, not very strong, and that stances have occurred where rough handling, either through the odominal parietes or per vaginum, has ruptured the fragile embranes, and caused the exact result we ought so carefully to

avoid. Another danger which often puts the lives of such patients in jeopardy, in whom the abscess opens into the bowels, is the long-continued exhaustion which sometimes results from the chronic diarrhœa or dysentery thus produced; nay, more, I have a most vivid recollection of the unutterable agony undergone by one lady from the frightful attacks of tenesmus, caused by the passage of such acrid matter over the sphincter of the anus,—an agony which, yielding to no remedy but chloroform, was in itself sufficient to have killed the unfortunate sufferer.

In every attempt which has yet been made to classify cases of pelvic peritonitis according to their causation, the puerperal variety, including those cases coming on after abortion, have been universally allowed to be the most frequent. The truth is, however, that though more than half the cases would be found to come under this head, yet we can seldom be quite sure, without the aid of an autopsy, of the primary disease which has given rise to the pelvic peritonitis, and also whether that primary disease is of uterine, tubal, or ovarian origin. Some authors, certainly, do not seem to have much doubt on this subject. Thus, Aran, in his "Leçons Cliniques sur les Maladies de l'Uterus," most distinctly gives it as his opinion that the primary affection is almost invariably ovarian or tubal. At p. 663* of that work, he says, "The true element, that playing the principal part in what we call periuterine inflammation, is the alteration of the uterine appendages, the ovary or tube." Again, at p. 672, "Perhaps inflammation of the uterus, especially endometritis, plays some part in the invasion of periuterine organs by inflammation, independently of any alteration in the ovary or tube. This I can say, that I have as yet met with not fact of the kind,† and am not completely convinced by any known facts which might seem to support an opposite opinion. It has not been shown to my satisfaction that the ovaries and tubes have been examined with sufficient care. Too frequently the examination has been made months, nay, years, after the attack, when any traces of inflammation in these organs may have disappeared long before." Again, at p. 679, we find him making no less positive statements, as to the manner in which the inflammatory swellings are formed. "When the appendages of the uterus are affected only on one side," he says,

* See also pp. 667 and 718.

† Dr. N. Duncan has, however, managed to convict M. Aran of inconsisttncy in his statements. *Vide* Duncan on Perimetritis and Perametritis, p. 41.

t is from those appendages, as from a centre, that the inflammatory anges extend, and the situation of the disased ovary or tube fixes finitely the site of the tumour in front, behind, or on either side the uterus. But if, as in a number of cases, the appendages are acked on both sides at once, the pathological changes soon meet the mesial line, most frequently behind, but sometimes in front the uterus, surrounding that organ in a kind of ring, which is ore or less complete." From these quotations, and from many ner passages of the work, in which the same idea is reiterated, it ll be seen that M. Aran makes the uterus play a very subordinate rt in the development of pelvic peritonitis; and Dr. West, in his mirable treatise on Female Diseases, takes up the same notion, and presses the same opinion in almost identical terms. But we can rcely hesitate to believe, that in many of the cases the uterus is e real starting-point of the inflammation. Indeed, it has lately en stated,* that the extension of the endometritis along the tubes is e most common cause both of the puerperal and non-puerperal rieties of the malady we are discussing. However true this may of the puerperal and gonorrhœal forms of pelvic peritonitis, I not as yet inclined to believe in the frequent causation of other rieties in this way. I have seen limited inflammation in the rous membrane so rapidly developed after the introduction of a ngle-tent, the employment of a cutting or burning instrument to e uterus, or even after the use of the sound, that no inflammation the mucous lining† of the interior of the womb could have had ne to spread through the tubes to the peritoneum.

That the determining causes of the puerperal variety of pelvic peri-nitis are much the same as those that might give rise to metritis or ndometritis, may be adduced as an argument in favor of the opin-n that the affection of the serous membrane is merely an extension y contiguity of the inflammation in the womb. Out of eighteen ses given by M. Bernutz, we find him stating that four arose from fficult parturition; three from cold; nine from too early rising ter confinement; one from fatigue, and one from venereal excess; nd M'Clintock observes the same fact as to the frequency of its rigin from too early rising, as he mentions that Dr. Heyerdahl of

* Duncan, *op. cit.*

† I do not here enter into the question whether metritis itself can be propagated by con-guity to the peritoneum. Metritis of the non-pregnant or non-puerperal uterus must indeed, rare, when Klob declares that he has seen no case in which he could positively say a "gen-ne metritis" existed. (Klob, Pathologische Anatomie der Weiblichen Sexualorgane, s. 206).

Christiana had informed him that, so frequently were patients attacked with pelvic cellulitis after leaving the Maternity Hospital in that city, that the managers had felt themselves compelled to lengthen the duration of residence in hospital, to prevent, if possible, such accidents in the future.

Bernutz dwells more particularly on the fact of the extension of the inflammation from the mucous membrane, when he enters on the consideration of what he calls blennorrhagic pelvic peritonitis, and he concludes, from his observations in the Lourcine Hospital,* that it is a very common variety indeed, and that pelvic peritonitis from this cause is not only the analogue of orchitis in the male, but also that it occurs in about the same proportion of cases as does that extension of gonorrhœal inflammation in men. Nay, so far does Bernutz drive his analogy, that he even occasionally gives to the whole group of symptoms of a case of pelvic peritonitis the name of *feminine orchitis*.†

Very few physicians in this country have had the same opportunities of studying the gonorrhœal variety as Bernutz has had at the Lourcine Hospital; and, in consequence, we find very few cases of blennerrhagic pelvic peritonitis in the writings of our gynækologists. So far as I can remember, I have only seen a single case of this interesting variety, but that a most formidable one, though it did not end fatally. In this woman I had the opportunity of treating the case from the commencement of the vaginitis to its termination in oophoritis, and inflammation of the serous membrane round the ovaries, and of tracing the gradual progress of the disease through its successive stages. It did not differ materially from any of the cases of a similar nature given in the work of Bernutz, except that the pelvic peritonitis was not developed, or, at least, was not evident until fully three months from the time when the gonorrhœa had been contracted, whereas the observation of Bernutz has not as yet presented him with any case in which the lighting up of the serous inflammation was delayed more than two months from the first appearance of the purulent discharge. In relation to this point, however, Dr. Duncan judiciously observes that the dangerous

* The Lourcine—the Female Syphilitic Hospital in Paris—offers, of course, exceptional statistic on the subject. During several months of the year, Bernutz tells us that, owing to want of space, they were obliged to admit as in-patients only those who presented the symptoms of periuterine phlegmons.

† Properly speaking, it is the oophoritis which is the analogue of orchitis, but it is impossible in such a case to separate the inflammation of the tissue of the organ from that of its serous membrane.

iod after delivery, after the commencement of a gonorrhæa, or r an uterine operation, lasts much longer than is generally sup- ed,—an observation, the full importance of which can only be reciated by those who remember its practical bearings on prog- is and treatment.

Amongst the different forms of pelvic peritonitis, one of the most mon, and one of the most important, is the menstrual, under ch head Bernutz includes 20 out of his 99 cases. In the major- of those patients the inflammation arises from sudden suppres- of the menstrual flux, whether that be caused by cold, by some ital emotion, or by any injury during the period. In almost all h cases which terminate favorably, it will be nearly impossible us to detect the part primarily affected, although, as we believe, re must necessarily be some starting point or other for the ammatory action. In the following case I suspected that the t ovary was the *origo mali*:—

Mrs. G., æt. 30, from Forfarshire, was suddenly attacked on the ond day after the commencement of the menstrual period with st violent pain in the right side of the pelvis, and when I saw a few hours afterwards was laboring under symptoms referable pelvic peritoneal inflammation.* There was nothing to be made of external examination, and on account of the menstrual flow ade at that time no internal examination; but the next day I covered by palpation a small and very tender swelling above the t supra-pubic region. Internal examination—the period ceas- the same day—discovered the uterus nearly immobile in the vis, its fundus anteflexed, and at the same time drawn over to right, and the cervix high up and looking towards the left. ere was great tenderness in the right lateral region and pos- ior cul-de-sac, and a feeling of fulness, but the left side was te free. Any pressure on the cervix at once caused a darting n in the seat of the swelling to be felt through the abdominal lls. The bladder and rectum unaffected. Pain very excruciat- , and only relieved by repeated subcutaneous injections of mor- ia. The swelling increased rapidly in size for the next few days, til it reached about three fingers' breadth above the pubes, at

* I had seen this lady about a week before, when she had complained of some pain over the um, but this had yielded to very mild remedies, and she had been going about and feeling fectly well until the sudden attack during the menstrual period. I was called to attend her he absence of Sir James Simpson on the Continent.

the same time extending outwards towards the anterior superior spine of the ilium. The pain continued most violent, and all the ordinary symptoms of peritonitis were present. The pulse was small and rapid, keeping about 120 per minute, and vomiting, which began on the third day, and lasted for about twenty-four hours, seemed to yield finally only to small doses of dilute hydrocyanic acid. About the fifth day, and coincidently with the subsidence of the vomiting, the pain became more endurable, the pulse sank to about 100, and the tension of the abdominal walls and tympanitis diminished. The tumor, though still very tender to the touch, could then be felt from without to be distinctly circumscribed, and did not extend more than two inches beyond the symphysis. Percussion over it elicited a slightly tympanitic sound except just above the pubes, where it was also most tender to pressure. After the sixth or seventh day from the commencement of the attack the lady did very well, but the pain remained very obstinate, and was always worse down the front and inner side of the thigh. Still it was not relieved in any degree by keeping the thigh flexed. The swelling began slowly to disappear, and on internal examination, about the twelfth day of her illness, the uterus was found to have gained some of its mobility, though pressure on its cervix or up against the fundus still caused the violent shooting pain already described. The ante-lateral flexion remained the same.

"On the sixteenth day from the beginning of the attack, I found that the swelling was scarcely to be felt through the abdominal wall, except by deep pressure into the pelvis, which still caused the patient very great pain. The uterus in much the same state, but its mobility undoubtedly greater. She was at that time eating and sleeping fairly, but had begun to complain of pain in micturition. She continued slowly to improve, and there were no symptoms of suppuration present, when, rather to my surprise, on the twenty-fourth day pus appeared in the water in very large quantity; and a day or two later nausea and vomiting began again, and proved most obstinate, resisting all the various methods of treatment I will presently detail. She had utimately to cease taking any food or liquid by the mouth, being nourished solely by nutritive enemata. Her pulse, however, during this time never rose above 100, and she managed to get a fair amount of sleep, though chiefly by means of the subcutaneous injections. The pus continued to appear in

urine for about a fortnight, gradually diminishing, however, in ntity—the acts of vomiting, too, becoming much less frequent; l, without entering into further details, she was convalescent. l able to be out of bed about the middle of the seventh week, e uterus had then regained much of its mobility, but was still eflexed. A month or two afterwards she went to travel on the ntinent, and when I saw her on her return she told me she had suffered in any way from fatigue or exertion. I ought to have ntioned, that this lady had only had one child some ten years ore, when she was delivered with great difficulty. The labor urred in Itaiy, but she could give me no particulars of it, except t it had lasted three days She also stated that she had suffered m similar attacks to the one I have just described, but not so ere."

The swelling—for, strictly speaking, it could not be called a nor—which formed so rapidly in this patient was obviously med by certain portions of bowel agglutinated together by nph, and at the lower part probably adherent to the right ry, and possibly also to the fundus uteri, which was drawn r to that side. That the swelling was mainly formed by intes- e is evident from the fact that percussion over the upper part of licited a modified tympanitic sound, which changed into a dull e nearer the pubes. Indeed, the hard and resisted tumor we d in similar cases of pelvic peritonitis is mainly due to the matt- together of the pelvic viscera by the deposited lymph, which, coming stronger and firmer, produces very dense fibrous adhe- ns; and also to the accumulation of sero-purulent or purulent id in the loculaments formed by such bands. It is owing to se facts that chronic pelvic peritonitis has not unfrequently been nfounded with ovarian and fibroid tumors.

The reasons which led me to suppose that the right ovary was e original cause of the inflammation in the serous membrane in s patient are chiefly these:—

1. The occurrence of the attack at a time in which the ovaries e especially the seat of congestion.

2. The position of the swelling.

3. On internal examination, after the subsidence of all inflam- atory action, I discovered an enlargement to the side of the

uterus, which was in position of the right ovary, and still sensitive to pressure.

The statement of the patient, that she had had four similar attacks at periodical intervals of two years, and that on each of these occasions she had suffered from the same violent pain chiefly in the right side and leg.

It may, however, at once be stated, that we never can be positively certain of the real cause of the attack without the aid of an autopsy, and even not always then, as the traces of the original disease may either have completely disappeared, or have become merged in those of the secondary affection.

Amongst the many forms of pelvic peritonitis, the traumatic variety does not take a very prominent place in the systematic works on the subject, although, in my opinion, its importance is considerably underrated. I am compelled to express my conviction also, that the inflammation of the serous membrane in many instances of this variety is due either to some imprudence on the part of the patient, or to some want of caution on that of the physician, although cases of course occur in which neither would seem deserving of blame. Thus, I distinctly remember, that in one patient the pelvic peritonitis was apparently produced by the passing of an uterine sound to measure the cavity. The peritonitis in this case—a weak exhausted woman of about forty—spread rapidly to the abdominal serous membrane, and proved fatal in some eight or ten days. At the autopsy no sufficient cause for the development of the peritonitis could be found; there was no endometritis or inflammation in the Fallopian tubes.

Among other determining causes of the traumatic variety, I may mention the use of tangle-tents to dilate the cervix, several examples of pelvic peritonitis arising in this way having come under my notice. Cutting operations on the uterus, the incision of polypi, the application of solid nitrate of silver to the interior of the womb, or of caustic potash to the cervix, and the wearing an intrauterine pessary, have all proved the exciting causes of such cases; and among others which have been mentioned, and which we can readily conceive may have produced the inflammation, we find recorded venereal excesses, injections of fluid into the uterine cavity, and chancres on the cervix.

[CONCLUDED IN NO. 7.]

MISCELLANEOUS.

Paralysis Occurring During Pregnancy.—Dr. James S. Bailey, lbany, N. Y., sends the following: A primipara, aged twenty-even, when four months advanced in pregnancy complained on sing one morning of numbness of her extremities, and by noon ad lost the use of her lower limbs. During the next day her arms ecame paralyzed, but her articulation remained unaffected, and ie could move her head, though with pain. The muscular sys-em seemed sore and tender; to touch even the end of her nose ave her sharp pain. On the seventh day a pain commenced over ie sacrum, and was so excruciating as to prevent rest or sleep. his continued a week, and then passed to the lower extremities, roducing violent contractions of the muscles. This condition isappeared in a few days, but left the parts exceedingly tender to ie touch. The bowels, bladder, etc., were natural. In two ionths the patient began to recover the use of her arms, but her gs remained useless until after her confinement. Labor was nor-ial, she had an abundance of milk, and the child did well. Her ienses returned in ten months after, and after the second flow she egan to recover the use of her lower limbs. In twenty-one months om her first accouchement she was delivered of a fine girl. She as continued slowly to improve, and is now attending to her house-old duties.—*American Practitioner.*

Infant Feeding.—Dr. Routh thinks that there is no point on which here is more evidence than against the use of all starchy matters or infants before they have teeth.

For, 1st. The assimilation of starch depends upon its conversion nto sugar by the saliva; but infants secrete no saliva for the first wo or three months

2d. Starchy food passes through the alimentary canal unchanged.

3d. The alimentary canal of an infant, is that of a carnivorous nimal.

4th. The food supplied to purely herbaceous animals recently orn, was animal, i. e. milk.

Ergo: Starchy food should not be given to infants until after the appearance of teeth.

As cow's milk was generally skimmed and watered before it was purchased, it was unnecessary to add more water.

As purchased cow's milk was generally deficient in cream and sugar of milk, and was also too acid, it should be mixed with lime water and sugar of milk, in the proportion of one-half to one ounce of lime water, and a teaspoonful of sugar of milk to every half pint of milk. Additional cream should be also added.—*Medical Times and Gazette.*

Diagnosis of Renal Disease from Blood-corpuscles in the Urine.—Dr. Joseph G. Richardson, Microscopist to the Pennsylvania Hospital, Philadelphia, has applied to the elucidation of the condition of the kidney in renal disease the well-known views of Cohnheim, regarding the relation of the white blood-corpuscles to the inflammatory process. If both red and white corpuscles are present in the urine, and if it can be ascertained that their occurrence is independent of vesical irritation, the following indication may be derived from their relative proportion.

When the red corpuscles greatly exceed the white in number, true hemorrhage has taken place from the kidney. This conclusion will be strengthened if no tube-casts be found, and the albumen be present in such quantity as will correspond to the amount of corpuscles, supposing both to be furnished by the liquor sanguinis.

When the white corpuscles are more than $\frac{1}{17}$th of the red, there is inflammation of the kidney of either an acute or a sub-acute kind, and the danger will be found to be in direct proportion to the total amount of the corpuscles.

When few or no red corpuscles are found to be mixed with the white, chronic inflammation is present, and is proportionate in extent to the number of blood-corpuscles.

In cases of acute Bright's disease, passing into the stage of fatty degeneration, the appearance in the urine of epithelium, containing oil globules points to the change from the stage of inflammation, and these epithelial cells will be found, according to the author, to vary inversely with the number of white corpuscles present, the albumen remaining the same in amount.—*Dublin Quart. Jour. Med. Science.*

EDITORIAL.

THAT the recent meeting of the American Medical Association was characterized by personal and political contentions that were, in plain terms, disgraceful, we think none will be disposed to deny who witnessed them. That the Association should be held responsible for the one-sided, and, in some cases, false accounts of its proceedings that have been published, we feel compelled to protest against. One of our medical exchanges has given its columns to extracts from the *Washington Chronicle* which are calculated to create most erroneous impressions as to what was the action of the Association, inasmuch as they contain several assertions that are utterty false.

That the Association should have been permitted to become the theatre of strife and crimination is most unfortunate, and indicates the necessity for some fundamental change in its organization. It is impossible that a body of four or five hundred men can act with calmness and dignity if personal and political differences are brought before it for discussion. The suggestion of the *Medical Gazette*, that we should have a "Medical Council," composed of not more than twenty-five or thirty really eminent men, chosen by the votes of the whole profession, to whom all such questions may be referred, is, we think, a very admirable one. If such a council should be appointed, however, we would not have it to substitute the Association, but to act in harmony with it.

Again, it is doubtful whether it is wise that the Association should be both for Scientific and Social purposes. We think that it is a mistake to combine them. No doubt it is

both pleasant and good that the Profession should have opportunity for social intercourse, but this should be outside of the Convention, and not a main feature of its plan. If the Association was for strictly scientific purposes, there could certainly have been no objection, from any quarter, to the admission of colored delegates, or even of Dr. Sullivan's "duly accredited Ourang"—ten-foot tail and all,—but when it is remembered that the social feature is so prominent a one in the objects of the Association, it is not surprising that there should have been those to violently oppose the admission of colored delegates. If admitted at all, these delegates must also be invited to the entertainments given to the Association; they must be permitted at the dinner which is to be had every year in accordance with Dr. Gross' resolution, and we feel strongly inclined to think that many of those who even favored Dr. Sullivan's resolution would shrink from such "mixed" dinners and suppers.

However this may be, the truth is that the question of color was not brought before the Association at all in such a way that it could consistently act upon it. The report of the majority of the Committee of Ethics was perfectly clear and perfectly right. The two Societies of the District of Columbia were engaged in a struggle for supremacy, and one of them was clearly proven to have behaved in the most shameful way, through its most prominent members. That all of the members of that Society should be excluded from the Association was so manifestly proper, that, had it not been for the clamor that was raised over the colored question, that was tacked on to the main issue, the action of the Association would have been speedy and unanimous. The resolution of Dr. Storer explains the whole story. As to the resolution of Dr. Sullivan, "that no distinction of race or color shall exclude persons claiming admission to this Association who are duly accredited thereto," its introduction was uncalled for, inasmuch as the question had not

been raised, except by the daily papers, for political purposes, and it would have been undignified and improper for the Association to act upon an abstract question merely to satisfy popular clamor. Moreover, the speech of Dr. Sullivan was grossly insulting to a large portion of the Delegates and offensive to the good taste of the whole Association. Its being tabled was made the occasion for a loud outcry about the "car of progress," by part of the daily press, which we regret to see has been taken up by the medical press of the North generally, while, in reality, the vote amounted to nothing but a rebuke to those who were anxious to introduce political issues where, above all other places, they had no business.

We sincerely hope that hereafter the Association will steadily refuse to be made the scene of personal contention, with the indecent criminations and recriminations we have just witnessed, and keep itself to the consideration of those great general questions upon the solution of which the advancement of science and the good of the profession so largely rest.

THE death of Sir James Y. Simpson has been announced, and our British exchanges come laden with eulogies of his life and character. A man of great force and originality, he has made an impress on the medical mind, such as few others in modern days have achieved. A life devoted to study and labor has passed, which the world can ill afford to lose.

THE Convention of Medical Teachers which met in Washington in April, after deciding that it was *inexpedient* to attempt any legislation upon the subject of Medical Education—leaving each school practically to determine the standard and fees for itself—adjourned. The result was just such as we anticipated.

WE welcome upon our exchange list the "National Medical Journal," of Washington, edited by Dr. Chris. C. Cox. The first number, which is before us, is most creditably gotten up, and reflects favorably upon both editor and publishers. The articles are well chosen, and the editorials in Dr. Cox's usual happy style. The "Journal" is a quarterly; terms $3 a year. We wish it all success.

BOOKS, PAMPHLETS, ETC., RECEIVED.

From the publishers—for sale by Jas. S. Waters:

ANATOMY, DESCRIPTIVE AND SURGICAL. By Henry Gray, F. R. S., etc., etc., with an Introduction and General Anatomy and Development. By T. Holmes, M. A. Cantab, etc. A new American, from the Fifth and enlarged English Edition. Philadelphia: Henry C. Lea. 1870.

THE INDIGESTIONS; OR, DISEASES OF THE DIGESTIVE ORGANS FUNCTIONALLY TREATED. By Thomas King Chambers. Third American edition revised. Philadelphia: Henry C. Lea. 1870.

RENAL DISEASES: A CLINICAL GUIDE TO THEIR DIAGNOSIS AND TREATMENT. By W. R. Basham, M. D., etc., etc. With illustration. Philadelphia: Henry C. Lea. 1870.

OBSTETRIC APHORISM: FOR THE USE OF STUDENTS COMMENCING MIDWIFERY PRACTICE. By Joseph Griffiths Swayne, M. D., etc., etc. From the fourth revised English edition, with additions. By Edward R. Hutchins, M. D. Philadelphia: Henry C. Lea. 1870.

From the authors:

Twenty-seventh Annual Report of the New York State Lunatic Asylum, for the year 1869.——Annual Address before the Medical Society of the State of New York. By John P. Gray, M. D.——Last Wills, Unsound Mind and Memory.——The Pulse of the Insane. By Edward R. Hun, M. D.——On Hospitals for the Insane, with particular refererce to Separate Establishments for the Chronic Insane Poor.——Can Maternal Mental Emotions produce Malformations? By G. J. Fisher, M. D.——Van der Kolk's Pathology and Therapeutics of Insanity.——Valedictory Address. By Ann Preston, M. D.——Twenty-first Annual Announcement of the Woman's Medical College of Pennsylvania.——Ninth Annual Report of the Woman's Hospital of Philadelphia.——Transactions of the Minnesota State Medical Society.——Correspondence Concerning a Fatal Case of Placenta Prævia——Iodoform: Its Therapeutical Effects. By Stiles Kennedy, M. D.——Dr. Wells, the Discoverer of Anæsthesia.——The Remedies We Use.——Sixty-third Annual Circular of the Medical School of the University of Maryland.——Thirty-first Annual Circular of the Baltimore College of Dental Surgery.——Spinal Irritation. By Wm. A. Hammond, M. D.

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ORIGINAL COMMUNICATIONS.

THREE CASES OF STONE REMOVED FROM THE FEMALE BLADDER BY RAPID DILATATION OF THE URETHRA.

BY ALAN P. SMITH, M. D.

ANNIE B——, aged 7 years, had been suffering from symptoms of stone for the past two years. The patient was placed under the influence of chloroform and fixed in the position for lithotomy in the male.

A pair of dressing forceps, with narrow round blades, were first inserted in the urethra, which was gradually dilated by the separation of the blades until the orifice would receive the extremity of the index finger. This was afterward used as the dilating power. In less than five minutes the finger passed freely into the bladder. The stone was at once detected, and was found to be too large to pass. It was grasped by a strong pair of forceps, broken, and easily extracted, the largest fragment measuring 3¼ inches in circumference, and weighing 140 grs. The whole calculus weighed 240 grs., and was composed of lithate of ammonia. For some time the child was unable to retain

the urine, but the urethra gradually recovered its tone and dimensions, and six weeks after the operation she had entirely recovered.

CASE II.—Miss A. T., aged twenty-three, had been suffering for several years. Upon examination with sound a stone was detected and dilatation accomplished as in the preceding case. The stone was extracted entire. It was shaped very much like a patella.

It measured one inch and three-quarters in its longest, and an inch and a quarter in its shortest diameter; it weighed 120 grs. It was composed of lithic acid. In two months she had perfect control over her bladder and had entirely recovered.

CASE III.—Miss M., aged 22 years, had been suffering with symptoms of stone for eight months. Dilatation was performed as in the two former cases.

Upon passing the index finger into the bladder a large rough calculus was felt, and firmly connected with it was a foreign body, which after a short examination was pronounced to be a hair-pin, forming at its looped extremity the nucleus of the stone.

The pin was lying transversely, the looped end surrounded by the calculus being toward the right side, while the two sharp extremities were buried in the mucous lining of the left side. At first I attempted to bring the end of the pin with the calculus attached into the opening of the urethra, but fearful that much force might drive the extremities of the pin through the violently contracting bladder, I determined to deliver by the feet. After some manipulation I managed to bring the two extremities together into the canal, and then by grasping them with strong forceps to engage the stone, but found it too large to pass. I now slipped a lithotriptor along the pin till the stone was reached, one-half of which was easily crushed. The pin with the remaining half of the calculus attached, was then withdrawn.

The stone was composed of phosphate of lime, weighed 300 grs., and when entire measured in its longest diameter 1¾ inches, and in its shortest 1¼ inches.

On the third day the patient had recovered entire control of the bladder, and on the fourth was walking about, quite well.

In all of these cases the hemorrhage was slight, and in no one of them was there much pain experienced after recovery from the chloroform.

In the report of these cases I do not claim the least originality in mode of operation, as rapid dilatation has frequently been practised before, although nearly all the books advocate a much slower procedure by means of sponge tents. My desire is simply to demonstrate, as far as three successful cases will go, that rapid dilatation of the urethra is as safe and easy a method as we possess for accomplishing the purpose in view.

A CASE OF HYSTERIA IN A MALE SUBJECT.

BY DR. A. B. ARNOLD.

THE following case derives its interest from the illustration it affords of the occurrence of hysterical symptoms in the male sex, and the influence which slight causes may exert in producing an apparent formidable neurosis.

A few days ago I was hastily summoned to see a man, who was pronounced to be in a dying condition. The patient appeared to be about twenty-five years of age, massive in structure, of elegant proportions, and of remarkable manly beauty. He laid on his back stretched out in full, and continually either moaned, sobbed and flung about his arms, or was affected with stridulous breathing. When attempting to speak or to swallow any fluid he was thrown into a fearful laryngismal spasm, with every sign of being in imminent danger of suffocation. These paroxysms were even excited by the least noise in the room. The man

was perfectly rational, and immediately responded to the request of showing his tongue or of changing the position of his body. By the movements of his hands he seemed to indicate that his greatest trouble was in his throat and chest. A physical examination elicited, however, nothing abnormal about these parts. From what I could learn from the people of the house it appeared that the young man was of sober, regular habits, and followed the profession of a veterinary surgeon. He returned in the evening from a call in the country in a very prostrated condition, and complained of having been suddenly taken ill with giddiness of the head, great oppression of breathing, wandering pains all over the body, and a sensation of faintness. On request to give me some information of the previous state of his health, he wrote with a pencil on a slip of paper, that he had suffered with gastric derangement for the last few days and occasional colicy pains.

Sinapisms over the stomach had produced no relief, and it was out of the question to prescribe for him any internal remedies on account of his inability to swallow anything. Thinking that the inhalation of chloroform might do some good in removing the dysphagia and the evident spasmodic condition of the glottis and respiratory muscles, I began to administer this anæsthetic agent, but on taking the first whiff, the patient was immediately affected by one of the paroxysms, which induced me to desist. The great resemblance of some of the symptoms to hydrophobia caused me to make the proper inquiries, but I was assured that my conjectures were wrong. In the course of about half an hour the labored respiration and suffocative attacks were replaced by belching and retching, and the case took altogether a favorable turn.

I left the patient with the direction to soak a napkin with some brandy and water, for him to press out the liquid with his lips, and then to swallow it as best he could. On my next

visit I found him perfectly restored, and walking about his room. He had followed my directions, and after repeated failures he succeeded in swallowing a large quantity of the stimulant, and soon after fell into a sound sleep.

PUERPERAL CONVULSIONS TREATED WITH CHLORAL.

BY T. P. JERMAN, M. D., RIDGEWAY, N. C.

ON the 29th of May I was called to see a negro woman, about 35 years old, very robust, weighing perhaps 175 pounds; by occupation a cook; had had four children, and was then in the ninth month of her pregnancy. Some days previously she had complained of pain in her back and head, not, however, of sufficient severity to prevent her from performing her ordinary duties. In the forenoon of the 29th she was seized with convulsions, and when I reached her, about 7 o'clock P. M., she had suffered continuously, either with the convulsions or subsequent stupor, until then. I found her with a good pulse, temperature natural, totally unconscious.

Examination per vaginam afforded no evidence of approaching labor. Gave 30 grains bromide potassium, and left three doses, 20 grs., to be given at intervals of two hours.

Returned in the morning, and finding her condition unchanged, commenced administering chloroform, of which I had only one ounce. As long as this lasted the convulsions were controlled, but as soon as my supply was exhausted they returned with increased violence. Remembering that I had at home a small quantity of hydrat. chloral, kindly furnished me by Dr. Willis Alston, of Warrenton, I procured it as soon as possible, and gave forty grains in three ounces of mucilage. She soon became very quiet; in a few hours began to make exclamations, giving

evidence of returning consciousness, and at 11 o'clock P. M. was delivered of a child which had been apparently dead for some hours. She is now improving.

During the past year I have had three cases of puerperal convulsions besides the above-mentioned. The first was a negro girl only a few months over thirteen years old. Convulsions commenced before labor and continued afterwards. Her case was treated with bromid. potass. and a single dose of morphine. Mother and child both did well. The second was also a negro. Convulsions commenced subsequent to labor, and she was treated with purgatives and bromid. potass. Two days after her attack she was sitting up in bed. The third case was a delicate white woman. She had two convulsions in the early stage of her labor. Bromide of potass. was given, and she was safely delivered, in a few hours, of a fine child, without any return of convulsions.

It is not well to draw hasty conclusions in medicine, and I have given my experience for twelve months in the treatment of this fearful disease, and leave it to my professional brethren to draw their own conclusions. I am fully convinced that the old routine of v. s., cupping, &c., will be abandoned, wherever a different practice is tried. Moreover, if hydrat. chloral acts in the majority of cases as it clearly did in the one first described, then we have a remedy on which we can safely rely in a disease which is a terror to all who come in contact with it, and is almost fearful enough to drive a young physician to seek some other employment.

SELECTED ARTICLES.

REMARKS ON PELVIC PERITONITIS AND PELVIC CELLULITIS, WITH ILLUSTRATIVE CASES.

BY LAUCHLAN AITKEN, M. D.

[CONCLUDED.]

I CANNOT conclude these observations without making some allusion to the important subjects of diagnosis and treatment, and it is with some shame that I confess that much, very much, remains to be done before we will be able to publish any incontrovertible opinion on either point. The greater number of gynækologists, in attempting to establish a differential diagnosis between those affections of the serous membrane, and of the cellular tissue in the pelvis, either simply repeat the leading signs and symptoms they imagine to be peculiar to each, or even fail more lamentably by ambitious, if praiseworthy, attempts to establish certain points in the diagnosis, which they consider to be infalliable. In a work* only very recently published, we may see an instructive example of the complete failure of such an experiment. Thomas has drawn up a long series of differential points, of which it may be said that in some cases his statements would answer for both complaints, while in many others they might be reversed without impropriety. As no one, then, can point out any one or two features so salient as to guide us by their existence to the immediate separation of the one form of inflammation from the other, it would perhaps be as well to abstain from doing so at all, lest in attempting to avoid the Scylla of over-positiveness we fall into the Charybdis of obscurity. I shall endeavor, however, in as brief a space as possible, to indicate the direction at

* Gaillard Thomas, A Practical Treatise on the Diseases of Women, p. 375. (Phil, 1868.)

least in which our attention must be turned when we are trying to separate the two affections.

In a former part of this paper, I expressed a belief that we would be committing a grave error if we were to rely on the greater severity of the symptoms in cases of pelvic peritonitis than of cellulitis; and, in repeating this statement, I am necessarily forced further to point out that it is to the physical signs we must chiefly trust to guide us correctly; and certainly I can confidently say, that there are few more difficult points in physical diagnosis than this, the difficulty being in many cases greatly increased by the fact that, unless under chloroform, the combined internal and external manipulation necessary to satisfy us is usually at first too painful for the patient.

In by far the greater majority of cases, then, of pelvic cellulitis, we find, on internal examination, that the induration or swelling is on one or other side of the uterus, and that it is only very rarely that the whole roof of the pelvis seems blocked up by the hard stony mass so common in cases of pelvic peritonitis. The tumor in most cases of cellulitis is found principally in one or other of the iliac fossæ, and apparently closely connected to the iliac bones, or, if it has not advanced so far, to the pubes; while the tumor, if felt at all through the abdominal walls in peritonitis, is usually more in the mesial line, or, situated laterally, does not by any means seem so intimately blended with the bones. An important point in the diagnosis of pelvic cellulitis, as well as of pelvic peritonitis, is the immobility or fixation of the uterus—an immobility which, in many cases of peritonitis when it is fixed all round, may be said to be absolute, while in cellulitis it rarely if ever happens that the fixation is so complete. As the immobility arises to a great extent from the presence of adhesions uniting the womb to other organs or viscera, and not alone from the presence of what we may call a tumor in the pelvis, we can easily conceive why it should be more marked in inflammation of the serous than of the cellular tissue.

In cellulitis, the uterus is usually pushed to the opposite side of the pelvis from that occupied by the phlegmon, whereas, in some cases of peritonitis, the body and fundus of the womb are so completely lost or enveloped amidst the exudation* that it is only by the use of the sound, when such a use is justifiable, that we can de-

* See Aran, *op. cit.*, p. 680.

termine its exact position in the pelvis. There can be no doubt, too, that flexions of the uterus of one kind or another—ante, retro, or lateral flexions, according to the position of the swelling—which are common in peritonitis, occur much more rarely in cellulitis. When the swelling has risen into the abdomen, we may be partially assisted in our diagnosis, not only by observing the position of the tumor, or by having followed its mode of origin and progress, but also by calling to our assistance such aids as percussion and auscultation. Portions of the intestine so frequently enter into the composition of the intra-peritoneal tumors, that we can often obtain from them a more or less modified tympanitic note, or hear the movements of gas or fluids through the mass. I know of only one form of cellulitis that could be confounded with an intra-peritoneal tumor under those circumstances, and that is the extention of the phlegmon to the abdominal cellular tissue, the *external peritonitis* of some authors. There is one point which every gynækologist can corroborate, namely, the retraction of the thigh in cases in which the cellular tissue round the psoas and iliacus muscles is involved, and the relief of pain which this flexion produces. I have frequently noticed, in cases of pelvic peritonitis, that the flexed position of the thigh either did not ameliorate the pain, or did so only when both knees were raised, by removing the tension of the abdominal muscles.

To go any further to attempt the separation, for instance, of the different varieties of pelvic serous, and cellular inflammation from one another, or those again from other diseases for which they might be mistaken, would lead me far beyond the scope of my present observations. I have said enough, I hope, to show that, while in a few cases the most experienced practitioner may without shame confess himself at fault, yet, in the majority, the whole of the features of the case, the *tout ensemble* of signs and symptoms, present to our minds so many points of sufficient distinctness as to enable us to form a correct diagnosis.

If most of our gynækological authors hesitate, however, to lay down any definite rules to guide us in our diagnosis, many of them are, on the other hand, rather too dogmatic on the subject of treatment. In this country, at least, it is not likely that many of us will be inclined to follow the rules which Nonat considers so infallible, and adopt his *coup-sur-coup* plan of bleeding, or to assent nowadays to Aran's

doctrine of the benefit to be derived from mercurialization. There may still be among us practitioners who think that we have rushed too blindly from one extreme into the other, and who remind us of the great alleviation of pain that bloodletting brought with it; but certainly there must be few, very few, left who can unhesitatingly approve of the decidedly antiphlogistic treatment of one section at least of the French school of medicine. As I must emphatically reject, then, any such violent plans of treatment as have been just mentioned, it appears necessary to say a few words as to the method which it seems most advisable to pursue—a method which is based chiefly on the doctrines taught in our own University.

Before doing so, however, I wish to remark, that many of the cases of pelvic inflammation might possibly be prevented by a proper regard to prophylactic measures, and it is in this respect that the observation already quoted from Dr. Duncan's work on Perimetritis and Parametritis seems so valuable. The experience of the Directors of the Christiana Lying-in Hospital, as reported by M'Clintock, proves to us, for instance, how necessary it is both to attend to puerperal patients, by preventing them returning to work too soon, and not to neglect even the slightest anomalous symptom occuring in women in this state. Many cases, again, of the gonorrhœal variety might have been prevented, if the practitioner had properly interpreted the indications which the extention of the specific inflammation to the mucous membrane of the womb presented. I have already dwelt on the absolute necessity there exists for great care on the part of both patient and physician when the cervix is to be dilitated, when any cutting or burning operation is required, or when we intend to apply any curative remedy to the interior of the uterus, or to inject its cavity. Suffice it to say, that the surprising rapidity with which pelvic inflammation so frequently supervenes from even the most trivial traumatic influence, will soon teach the young and inexperinced practitioner the necessity for caution.

In the acute stage, then, of either of the forms of pelvic inflammation we have spoken of, it may be necessary to be so far antiphlogistic as to remove blood by leeching. Of course the amount to be taken from your patient is to be regulated by her general strength, and according to the form of inflammation and variety of the disease she is suffering from. A phlegmon will require the

removal of blood to a less degree than a circumscribed peritonitis. A puerperal patient, again will probably be seldom able to bear much additional loss of blood: the sufferer from the gonorrhœal variety is usually too much weakened by the long-continued discharge which generally precedes the outbreak of the secondary affection: and the same will, in all likelihood, be true of those in whom the local peritonitis or cellulitis is only the complication of an organic disease. In the menstrual variety, on the other hand, when the flow has been suddenly checked, and in most of the traumatic forms, leeching, even to the withdrawal of a considerable amount of blood, will not only prove useful, but may even be imperatively required. The rules and method of leeching have been dwelt on at so great length by many of the French authors, that the variety of directions given, and the number of precautions they say are necessary, might almost drive an ordinary practitioner to distraction, if he were to attempt to pay any attention to them. For my own part, I have never yet seen a case in which I thought it essential to take the blood from the cervix direct. I have, in every case I employed leeches, attained all that I desired by allowing them to fasten round the anus; and the communication between the hæmorrhoidal veins and those of the uterus and its appendages, is so free that we may almost consider this to be direct leeching. My great objection to the introduction of a speculum, of such a size and shape as to be suitable for leeching, into a hot and irritable vagina, is that it must press injuriously in nearly every case against an inflammatory mass, an immobile uterus, or a displaced and tender ovary.

But if the local detraction of blood is required more in pelvic peritonitis than in the simpler form of pelvic inflammation, the use of opiates may be said to be even still more imperatively demanded in the former. The continued and severe pain, the obstinate vomiting, and the early exhaustion of the patient in consequence of the retching and straining, force us to keep our patients as much as possible under the influence of narcotics, and the most powerful of those remedies are usually necessitated. Opium and morphia suppositories of the strength of a fourth of a grain and upwards, repeated at frequent intervals, and the subcutaneous injection of strong solutions of morphia,* are generally the best forms for the administration of that

* In the last case I began with a quarter of a grain of the bimeconate of morphia in solution but had rapidly to increase it first to one half, then to a whole grain, and finally to a grain and a half, twice a day, to keep the intense pain in subjection.

valuable narcotic, as the nausea and sickness often prevent us giving anything but ice by the mouth. Other anodynes, such as cannabis Indica, conium, hyoscyamus, etc., may be used, and sometimes are required, but I must confess to having little confidence in their pain-destroying properties in such acute affections as inflammation of the pelvic peritoneum, although they may perhaps be found useful in the few cases in which you ascertain that there is a distinct idiosyncrasy on the part of your patient against the use of opium.

Besides these general and local means, we must have recourse at the commencement of such cases to constant poulticing or stuping, and it is generally advisable to add to the poultice some soothing tincture, liniment, or oil. The French, in cases in which there is much tympanitis, recommend the application of ice-bags over the abdomen; but most English physicians declare their prepossession in favor of the older method of using heat and moisture combined, in every case of peritoneal inflammation. From mercury, in any shape or form, I have never seen any benefit accrue; but to those who are wedded to the notion that its action is necessary for the resolution of a serous inflammation, it has been suggested* that the best form in which it could be given, would be that of medicated pessary or suppository. In both ways, a slight action on the gums can very soon be obtained. In the first week or ten days of the acute stage, very little good is to be had from acting on the bowels by purgatives, though occasionally you require, by means of some simple enema, thrown up through a long tube,† to remove any hard or impacted fæcal masses, which, by accumulating in the sigmoid flexture or rectum, may be pressing injuriously on the tender swelling in the pelvis, and thus aggravating the sufferer's pain.

The vomiting is another of those distressing symptoms which frequently requires our interference, and, I must confess, very often baffles all the ingenuity and skill of the medical attendant, occasionally proving even so exhausting as to destroy the patient. Small doses of dilute hydrocyanic acid, bismuth in powder or solution, oxalate of cerium, charcoal, cherry laurel, or lime water, small doses of opium, blisters to the epigastrium, the spinal ice-bag,‡ and

* Sir J. Y. Simpson's Lectures on Diseases of Women—Medical Times, 1859–60.

† See Aran, *op. cit.*, p. 737.

‡ In two very severe cases, I imagined that the spinal ice-bag checked the vomiting, when all other remedies have failed, but no opinion can be founded on two cases.

the constant use of ice may all be tried in rapid succession, and each successive remedy prove as futile as the one preceding. Sometimes we are obliged to abstain from giving food or medicine of any kind by the mouth, and to trust to nutritive enemata solely, though in a case of pelvic peritonitis the necessity which should induce us to do so must be dire indeed, as one of the main objects of our treatment ought to be to keep the lower bowel as quiet as possible.

When the active symptoms have subsided, and the complaint has passed into the chronic stage, the treatment will vary according to whether we have an abscess formed or not; but to enter even superficially into a discussion of either point would lead me too far. In the two cases to which I have just alluded, and in which I evacuated the pus, the success justified the treatment in my eyes, whatever it might do in those of such an opponent of active interference as Aran. I would only call attention to what others I believe have also stated, which is, that an abscess may exist without our being aware of the fact. I have occasionally been startled by the appearance of pus from the bowel or bladder, when I had not even the faintest suspicion that suppuration was going on in the pelvis. Nonat, it is true, maintains that the occurence of suppuration is almost invariably due to the neglect of intelligent treatment on the part of the practitioner; but as his intelligent treatment consists in repeated venesections, I am afraid that most of our brethren in this country are likely to remain great sinners in his estimation. Perhaps I may be allowed to point out, however, that we may sometimes prevent the disease becoming chronic by carefully guarding our patient from imprudent acts until at least the first menstrual period has passed, and thus warding off those exacerbations of the original evil, the *redoublements inflammatoires*, which are so trying to the patience both of physician and patient.

In quitting the treatment of those important affections, I cannot help quoting a passage from Bernutz:—"I ought to add," he says, "that I have found conium a most valuable special narcotic to the genital organs I give it so as just to produce slight derangement, and a kind of hallucination." I have never tried it, but an observation of the kind from so attentive a clinical physician as Bernutz is very valuable*.—*Edinburgh Medical Journal.*

*Compelled by the state of my health to winter in the south of England, I have been quite unable to get at many of the books, periodicals, or journals alluded to, and have been obliged to trust to memory to a much greater extent than desirable. I must therefore crave the indulgence of my readers for any inaccuracy in reference or quotation they may notice.

ON VISCERAL NEURALGIA.

BY DR. ALBERT EULENBURG,
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NEURALGIA GASTRICA.

Synonyms.—Cœliac neuralgia, gastrodynia neuralgia, spasm of stomach.

Under the name of "neuralgia gastrica" I combine the two affections which in text-books are generally treated separately as "gastrodynia neuralgica" and "neuralgia cœliaca," for I have not been able to convince myself that these two different names really imply two affections, each located in different nerves—viz, in the one case the gastric branches of the vagus, and in the other the solar plexus of the sympathetic. Gastric neuralgia is characterised by a spontaneous pain occuring paroxysmally, which is either concentrated in the epigastric region, or is reflected thence to the back and to the sternal region. The paroxysms generally occur suddenly without precursory symptoms, and the very acute pain may subside after a few minutes, to recur again and disappear after several remissions and exacerbations. Pain on pressure at the epigastrium does not exist; on the contrary, firm pressure here generally alleviates the pain, so that the patient is often induced to exercise it.

Amongst the motor phenomena we notice that tension of the abdominal walls is generally present, and that the epigastrium is commonly drawn in. If the pain be very intense, changes in the circulation may be seen. Under these circumstances the extremities and face become cold and pale, the radial pulse small, heart's impulse feeble, and the number of beats retarded or accelerated. A feeling of extreme faintness and anxiety, which may be present here as in cases of angina pectoris, is doubtless connected with these circulatory disturbances. Spasmodic yawning, nausea, eructations of gas, and desire to micturate, are sometimes noticeable towards the end of the paroxysm.

The duration of the attack varies from several minutes or half an hour up to several hours, or even the whole day.

With regard to the seat of origin and pathogenesis of the disease, *Autenrieth*, and after him *Romberg*, assumed the existence of two forms of gastric neuralgia—the one (gastrodynia neuralgica)

originated, according to the ideas, in the gastric branches of the vagus, the other (neuralgia cœliaca) in the sympathetic solar plexus. Romberg expressly mentions as pathognomonic of cœliaca neuralgia the specific sensation of oppression which he considers to be generally characteristic of sympathetic hyperæsthesia. This specific feeling of oppression—which, it is true, is also found in angina pectoris and in mesenteric neuralgia—is, however, principally the result of the general changes in circulation which are produced by the *anomalous action of the cardiac and vaso-motor nerves* during the paroxysm; and this abnormal action of the heart and vessels is a secondary effect produced by means of reflection; for irritation of the sensitive fibres of the abdominal organs causes increased irritation of the cardiac vagus fibres and paralysis of the abdominal vaso-motor nerves.

That the vagus is the sensitive nerve of the stomach has been shown by numerous experiments, and recently by those of Lussana and Trezoni; (a) all the phenomena of gastric neuralgia may, therefore, be referred to this source of origin. We are in a different position with regard to the sympathetic, and more particularly with the solar plexus, for up to the present time no physiological facts have been adduced to show that sensitive and reflectory nerves of the stomach, or sensitive nerves in general arise from the solar plexus. The assumption, therefore, that in gastric neuralgia the pains are consequent on hyperæsthesia of the solar plexus is entirely without foundation until sensitive functions can be shown to exist in the branches of that plexus, nor is it altogether necessary, from a clinical point of view, that we should give such a symptomatic differentiation of the neuralgiæ of the stomach as Romberg requires. Most writers have expressed opinions to the contrary, and justly so, on the ground of absence of therapeutic effect in the different forms of neuralgia.

The etiology of gastric neuralgia is obscure to a high degree. We do not know to what kind of irritation the sensitive nerves of the stomach respond by the production of pain and the reflex phenomena above mentioned. It is only of the pre-disposing influences of which we possess any knoweledge. The disease is most common in youths and in persons of middle age, more so in women than in men, very often associated with anæmia and chlorosis, and often connected with hysteria. The absurd opinion has been pro-

pagated that women of excitable and irascible disposition—so-called Xantippes—are pre-eminently disposed to the disease. Sometimes hereditary taint may be discovered; bad nutrition, exhausting diseases, and so on, predisposed to gastric as well as other neuralgiæ. Sometimes masked intermittent forms of typical gastric neuralgia are observed. Of the real local cause of the affection we know nothing. Pathology is silent on this subject, and clinical observation shows at least this much, that important changes in the structure of the stomach and organs of digestion do not usually exist, inasmuch as the complete absence of dyspeptic and other digestive disturbances forms the most important criterion in the differential diagnosis of gastric neuralgia.

Concerning diagnosis, the point is not so much to recognize the series of symptoms of gastric neuralgia—which with a little care is not difficult—but not to overlook changes in structure of the walls of the stomach, if such exist. The diagnosis "gastric neuralgia" as such is of almost exclusively negative importance, implying only this—that in the given case the disease is not catarrh of the stomach, not ulcus ventriculi, and so on. Positive exclusion of structural changes in the walls of the stomach is, however, of the utmost prognostic therapeutic importance. The essential differential criteria are as follows:—In gastric neuralgia there exists well-marked paroxysms of pain and painless intervals. These paroxysms are independent of taking food, and the pain is not increased but rather diminished by pressure. In chronic diseases of the stomach on the contrary the pain is provoked and increased by irritation of the diseased mucous membrane, and it therefore occurs mostly when the stomach is full immediately after meals, and particularly after irritating and indigestible solid and liquid food, and it is aggravated by pressure at the epigastrium. Dyspeptic phenomena and changes in digestion generally being absent in gastric neuralgia, the general nutrition is not impaired, even after a prolonged existence of the disease, whilst in cases of chronic disease of the stomach, important digestive changes are never absent, which during the course of the disease produce emaciation and a cachectic condition of the patient.

The mistake of considering gastric neuralgia as intercostal neuralgia or rheumatic pains in the abdominal walls may be avoided partly by strict attention to the paroxysmal phenomena and partly

by testing the sensibility to pressure, which is as a rule increased at certain points, both in the intercostal neuralgia as well as in rheumatism of the abdominal walls.

The prognosis of the disease is generally favorable, although spontaneous cessation is not of frequent occurrence, yet the disease usually gives way to appropriate treatment. The least favorable result may be expected in cases where the disease is of centric origin, and the cardialgia of hysteria.

The aim of the *treatment* must be as far as possible to remove the causes, very few of which, however, and only remote ones, are known to us and are accessible to treatment. In those very frequent cases occurring in young females in connection with anæmia and chlorosis the preparations of iron and chalybeate waters act very favorably; the spas of Pirmont, Driburgh, Schwalbach, Franzensbad, ect., have gained great renown for such affections; most of these waters may be suitably employed at home and in the winter. The same is the case with the pyrophosphoric chalybeate waters. With the use of the preparations of iron may be combined a strengthening diet, exercise in the open air, gymnastics, etc. The so-called digestive medicines are quite unnecessary and useless. Those typical cases of neuralgia dependent on malaria may be cured by the use of quinine. The cardialgia of hysterical persons has subsided in several instances after the successful treatment of local disease of the generative organs (metritis, erosions, ulcers of uterus, etc.). In many cases of gastric neuralgia our ignorance of its etiology restrict us within the bounds of empirical attempts to treat the disease symptomatically. It is easy to see how many remedies should have been successful in cardialgia since the affection is of a favorable kind, disappearing sometimes spontaneously, and occuring in irregular paroxysms, with intervals of sometimes long duration. But even after such considerations it is almost incredible to see what drugs have been employed for the disease. If we go through the list we scarcely find one drug, worthy or unworthy of mention, in all Pharmacopœias ,which has not been used. Arnica, calendula, folia visci, rad. sumbul, rad. artemisia, valeriana, rheum, ol. ætherea, opium, belladonna, hyoscyamus, nux vomica, strychnia, cinchona, sugar, carbo, kreasotum, iodum, and most particularly bismuth in its various forms, preparations of silver, zinc, arsenic, and many more.

Bismuth, and more especially the trisnitrate, is placed at the head of the list by several authors, and it is, in fact, often useful. The nitrate of silver and arsenic also render good service. As palliative remedies during an attack, amongst others, warm poultices to the epigastrium, dry or moist, are preferable to inunction with warm oils and compression kept up by means of bags of warm sand. The use of spirits seems to do good during the attack, but irritating narcotic plasters, narcotic embrocations, and so on, are useless. The most certain palliative remedy is without question morphia injected hypodermically, most suitably in the epigastric region, where absorption takes place most rapidly. Where no special causative indication exists the injection will always be sufficient, and will at least produce in the shortest time all the good effect which can be gained by pharmaceutical treatment.—*London Med. Times & Gazette.*

ON THE HYDRATE OF CHLORAL AS A HYPNOTIC AND NERVOUS SEDATIVE, ESPECIALLY IN GYNÆCOLOGICAL PRACTICE.

BY THOMAS MORE MADDEN, M. R. I. A.

HAVING had an opportunity of testing the effects of hydrate of chloral, the new hypnotic and sedative, in a great number of cases, I venture to hope that the following observations, being a *résumé* of my notes of its action in several cases, may be of interest to those who have not employed this new remedy on an extensive scale.

Before entering on the consideration of the therapeutic value of chloral, as exemplified by the cases in which, with the approval of Dr. Johnston, Master of the Rotunda Hospital, I have administered this remedy in the gynæcological wards of the lying-in hospital, as well as in private practice, I may premise that having no predisposition in favor of or against the new drug, I have given it a fair trial, and now submit the notes taken as to its effect in some of the cases in which it was administered, whether they be in favor of or against the supposed value of this addition to our therapeutic resources.

In many instances, those who have taken an active part in

introducing new remedies into practice appear to have fallen into the not uncommon error of taking the *post hoc* for the *propter hoc*: and the experience of any one conversant with periodical medical literature, for even a few years past, will find highly educated and accomplished physicians extolling the virtues of novel medicines, which, within a very short time have fallen into well-merited disuetude. The confidence of the physician who administers a new drug of supposed extraordinary powers in the novel remedy is oftentimes reflected by the patient, who, being perhaps minutely questioned as to the effects which it was hoped might be produced by the medicine, begins to imagine what he wishes may be truly effected by the curing pill or potion; and, such is the wondrous power of the imagination over bodily sensation, that he oftentimes feels for the moment all the benefits which have been ascribed to the medicine, and unconsciously deceives his physician as well as himself. Anxious to avoid this error, I have endeavored to test the new remedy, so as to exclude, if possible, this source of fallacy. I have, therefore, in a certain number of cases, first given the narcotics and sedatives usually employed, and have then compared their effects with those of hydrate of chloral, without letting either the patient or nurse know of the change of medicine, and I have then given some inert substance in draughts similar in form and taste to those previously prescribed, and had them administered with all the formalities with which the patient had been familiarized when taking the chloral for the purpose of the experiment; and I have thus been able to say how far the phenomena that followed were really produced by the medicine administered or not.

The great number of alleged new remedies which now-a-days are almost daily added to our list of the Materia Medica, already as long, and, in some respects, nearly as useless as the catalogue of the ships in the Iliad, should act as a preventive to our resorting to medicines simply because they are novel, unless they expressly accomplish new purposes or fulfil more advantageously those already attained; for, the unnecessary multiplication of medicines and preparations, far from adding to the resources of the practitioner, becomes, as Sir Henry Holland justly remarks, "an incumbrance to the practitioner and an impediment to the progress of the science."

Chloral, however, does promise to accomplish new purposes in

the hands of the physician, as well as those of the surgeon, and to fulfil more advantageously others already attained.

The effects claimed for chloral by Liebreich, Richardson, and others, are:—1. That it produces sleep. 2. That it brings down the animal temperature. 3. That it removes sensibility. 4. Causes muscular relaxation. 5. Acts with extreme rapidity. 6. Does not require an increased dose to produce its effects, even after long use. 7. Has no counter-indication to its employment. 8. Is not followed by any unpleasant after-effects.

According to Liebreich, the physiological action of chloral is entirely due to the decomposition of the substance in the system by the free alkali contained in the blood, and the gradual formation of chloroform. This theory of the *modus operandi* of chloral has been controverted by M. Demarquay, of Paris, but has been in great measure confirmed by the more recent experiments of MM. Personne and Roussin,* who have shown that chloral is, in the first instance, decomposed into formic acid and chloroform in the blood.

Chloral seldom produces the preliminary stage of excitement so constantly observed when chloroform is introduced into the system by inhalation; and the fact is thus accounted for by Dr. Liebreich: "On account of there not being a sufficient amount of alkali in the blood, the formation of chloroform cannot take place, as it were, explosively; on the contrary, each molecule will take up a quantity of alkali from its immediate neighborhood; and this process can only be finished after the blood has furnished the corresponding amount of alkali. A minimal quantity of chloroform is therefore formed in a unit of time, and acts at first on the ganglia of the cerebral hemispheres, afterwards on the ganglia of the cord, and at last on those of the heart. It is therefore, as it were, the very slowest method of administering chloroform."†

I now propose to lay before the reader the obeservations I have made as to the physiological and therapeutic action of hydrate of chloral in the cases in which I have administered it.

Chloral is unquestionably a most powerful nervous sedative and hypnotic, but I have not found it quite as certain in its action as I

* MM. Personne and Roussin, L'Union Medicale, Nov. 30th et Dec. 2nd, 1869.

† Dr. Oscar Liebreich, "On Hydrate of Chloral, a new Hypnotic and Anesthetic." Berlin: 1869. See also Dr. Dobell's Report on the Progress of Practical Medicine, p. 227. London: 1870.

had hoped from reading Liebreich's, Sir James Simpson's, and Dr. Richardson's papers; on the contrary, in some of the cases in which I tried chloral it failed in ordinary doses to produce any effect whatever. The average dose for an adult as an anodyne is from 20 to 40 grs.; usually 30 grs. acts as a full anodyne, but I have found 10 sufficient, and I have given as much as 80 grs. I would not, however, recommend the latter quantity to be rashly tried, as chloral is no mere placebo which, if it does no good, at least can do no harm; on the contrary, it is a substance which requires to be administered with great caution, being capable of acting with extraordinary power on the ganglionic and nervous system generally. Dr. Richardson states that 2 grs. of hydrate of chloral are equivalent in physiological value to 4 grs. of chloroform; and when we bear this in mind we cannot be surprised at the cases recorded by Dr. Noir in the *Gazette des Hôpitaux*, December 22d, 1869, in which 75 grs. of chloral produced symptoms of a very grave and alarming character.

The case in which I gave 80 grs. of chloral, as will be seen when I come to refer to it presently (see Case VII), was of a very exceptional nature, and one in which I had very cautiously given the medicine in gradually increasing quantities from a very small to a very large dose. I have frequently found 10 grs. of chloral quite sufficient to cause the almost immediate cessation of violent uterine pain, and sometimes even to produce some three or four hours' sound sleep in cases which had resisted full opiates.

One of the great advantages which chloral possesses over every other hypnotic and nervous sedative is the rapidity of its action. In all the cases in which I have tried chloral, if it had any effect whatever, it was manifested within an hour of its administration; this was the furthest limit, but in the great majority of cases it acted within twenty minutes, and in several cases I have seen sleep produced or pain completely relieved in less than five minutes from the time the dose of chloral was taken.

It has been remarked by some observers that this drug differs from opium and other narcotics in the fact that the same dose continues to produce the same effect for long periods of constant use. This has not been my experience; for in several cases in which I continued the chloral for some time I found it necessary to increase the dose, and that after some time that even large doses failed in their effect.

Dr. Richardson states that the administration of chloral reduces the animal temperature in ordinary narcotism at the minimum 3°, and at the maximum 4°; any decrease of temperature below the latter figure being, according to this observer, an indication that the chloral has been pushed to a dangerous extent.* My experiments. as far as they have gone, have not confirmed this observation. In some cases I have noted a diminution of temperature to the extent of from one-fifth to one-third of a degree produced by the chloral; but in quite as many cases the medicine had no effect whatever on the patient's temperature. I have not, however, pursued my inquiry on this point sufficiently far to enable me to speak with any certainty on it.

The muscular relaxation which, as Dr. Richardson points out, is produced by chloral, indicates the probable value which the surgeon will doubtless derive from this agent in cases in which it is necessary to overcome muscular spasmodic action; and to the midwifery practitioner Dr. Richardson's hint should be of even greater value than to the surgeon; for, as Sir James Simpson has shown, parturition has come on without any diminution of the parturient force in a patient under the influence of chloral. We have here the hint of a remedy probably of great power afforded us in the treatment of a class of cases in which I believe chloral was never thought of until I tried its effects in the wards of the lying-in hospital—I mean in cases of difficult labor from rigidity of the os uteri and soft parts. I shall now, without further preface, proceed to give the details of some cases in which I employed chloral.

[A series of 25 cases, embracing cancer, puerperal mania, after-pains, delirium tremens, etc., are given, in nearly all of which the good effects of the drug were conspicuously shown.—*Eds.*]

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Besides the foregoing, I have given chloral in twelve other cases; but the space at my disposal does not permit me to give the details of them in the present communication. One was a case of slight *delirium tremens*, a middle-aged gentlemen, cured by 10 gr. doses of chloral, repeated every third hour till sleep was obtained. One was a case of insomnia, acute gastritis, and some mental disturbance occurring in a patient ten days before her confinement, and suffering from the abuse of wine and ardent spirits, of which

* Medical Times and Gazette, Nov. 6th, 1869, p. 567.

she consumed an almost incredible quantity. In this case, which I saw with my friend Dr. Moore, of Amiens-street, chloral, given in large doses, failed to produce sleep, which followed the substitution of bromide of potassium for the chloral. Two were cases of irritable bladder. Two cases of rigidity of the os uteri, during labor, in which chloral appeared of some use. Two were cases of puerperal mania, in one of which 15 gr. doses of chloral produced sleep; in the other 35 gr. doses had no effect; and lastly, four were cases of after-pains, relieved by from 5 to 20 gr. doses of chloral.

In some of the foregoing cases chloral failed to produce sleep; in two or three cases it not only failed to produce sleep, but on the contrary, induced a condition of extreme nervous excitement and hyperæsthesia. But in the great majority of cases the chloral allayed nervous excitement, relieved pain, or produced sleep with great certainty and remarkable rapidity. I have, moreover, observed the fact that the sleep produced by chloral more closely resembles natural sleep than that induced by opium or any other narcotics; the patients were generally free from any unpleasant after-effects, such as those produced by opiates, and informed me that they had slept pleasantly, as well as soundly, and awoke refreshed by their night's repose.

In conclusion, I may venture to say, speaking from my own experience of this substance, that hydrate of chloral is one of the most valuable hypnotics and nervous sedatives at the command of the physician. And I might venture to hazard the opinion that ere very long hydrate of chloral will come to be tried in every case of insomnia, from whatever cause it may arise, and in every case of acute nervous pain and hyperesthesia, in which opium or other narcotics and sedatives have either failed to produce sleep or allay pain, or are contra-indicated by any cause.—*Dublin Quart. Jour. of Med. Science.*

SYMPTOMS OF EMBOLISM OF THE SILVIAN ARTERY AND THEIR CAUSES.

BY T. CLIFFORD ALLBUTT, M. A., M. D.
Physician to the Leeds General Infirmary, etc.

IT is with great pleasure to the readers of the "Medical Times and Gazette" to see in its columns the lectures of continental professors, and more especially of professors so eminent as those whose lectures are announced for the present year. The lectures on embolism now in course of publication by Professor Niemeyer are an earnest of what is to come. This not only brings German thought and observation among ourselves, but gives us an opportunity of discussing the opinions and statements of German physicians in a way which is otherwise impossible. Few even of those who read German periodicals can carry on a discussion in the German tongue.

I feel, however, that there is some presumption in my coming forward to discuss any points of Professor Niemeyer's lecture; my only excuse is that these cases of Silvian embolism have for some years been a favorite study of my own, and that I have certain definite opinions concerning the phenomena of them, which opinions are somewhat different from those of Professor Niemeyer. I hope I am justified, therefore, in taking the present occasion for a brief mention of some of them. At the same time let me express my sense of the great value and importance of Professor Niemeyer's lecture, and let me particularly refer to his account of the very interesting collateral phenomena of splenic embolism in the case which he records. I do not think we in England inquire sufficiently into any history of pain in this region or of shiverings, or that we look carefully enough for enlargement of the spleen with or without tenderness. His observations again on the discovery of encephalic embolism and thrombosis as pathological facts are very interesting, as they are in direct refutation of such strictures as that of Nélaton, which has attracted so much attention of late. I mean the absurd accusation against "mikroscopische Spielereien," which, according to Nélaton and others, have the tendency to encourage a beetle-eyed method, and to disintegrate all large conceptions of clinical phenomena. In encephalic embolism we have a discovery which is bred by this new spirit of minute research, which, how-

ever, is not a microscopical discovery at all, but one which was open to the naked pathological eye, and which was discovered less by poring among the tissues than by the suggestions of clinical phenomena themselves. So that in this, as in hundreds of like instances, the microscope is the companion of accurate and discriminating clinical observation, and not of petty curiosity.

The point to which I wish rather to refer to-day is that of the phenomena of consciousness and their causation. In the case of Silvian embolism, which Professor Niemeyer records, unconsciousness was a marked symptom, and he speaks of unconsciousness as common symptom of this disorder. Indeed, he refines upon the diagnosis between embolism and hæmorrhage, and considers that the loss of consciousness in both is one of the resemblances which tend to confound the two kinds of mischief; so that the ultimate diagnosis is rather to be inferred from the less direct evidence of the patient's age and the condition of the heart. In his subsequent remarks upon the pathology of the affection Professor Niemeyer offers an explanation of this unconsciousness, and he refers it to an œdema of the parts which suffer—to an œdema, that is, of the mesocephalic ganglia and their neighborhood which presses upon the cerebrum. This is a very important question, and it is one upon which the diagnosis of Silvian embolism more or less depends.

To take the symptoms first: it is certainly contrary to my experience of cases carefully watched and investigated to suppose that unconsciousness, or what I may call mental or cerebral apoplexy, occurs in them to any marked degree. These cases of embolism are not uncommon either in our waiting-rooms or in our museums, and I have generally six or eight under my own care among hospital patients and elsewhere. Now it is a remarkable and important fact that in my own cases I rarely get a history of complete unconsciousness. I very rarely find, that is, a history of coma or semi-coma, unless it be of very short duration. In many well-marked cases with complete or almost complete hemiplegia, I have satisfied myself, after careful inquiry, that there has been no actual unconsciousness at all, but rather shock and bewilderment. To speak pathologically, there has been in such cases no evidence of more than momentary pressure. For example, on turning to my notes I find that a young woman suffering now from marked and obstinate hemiplegia and from all the symptoms of left Silvian

embolism and from heart mischief, never really lost consciousness at all. She had risen from bed but a few minutes or moments when she fell and was raised up hemiplegic; she was "dazed," but remembered indistinctly what had passed, how her friends came about her, how her husband lifted her up, and how she woke from a sort of confusion to find her right side useless and her speech impaired. To take a second case: a woman was engaged in household work, "a sickness and fainting came over her," but she was able to reach her chair; she seems then to have been "lost" for a few seconds, from her daughter's account, but soon recovered consciousness, remaining, however, hemiplegic of the right side. Another woman was standing on a chair to reach something above her, when she fell to the floor hemiplegic.* There was but transient unconsciousness. The same stories I find also in the histories of male patients attacked with left Silvian embolism. I am told of their being "dumbfoundered," "faint," "lost for a few minutes," and the like, but seldom really comatose or stertorous.† In all these cases, I refer of course to embolisms of the main artery with grave persistent hemiplegia, and some speechlessness, not to embolisms of smaller branches on the one hand, or of the internal carotid or anterior cerebral arteries on the other hand. In all cases of simple Silvian embolism, loss of consciousness seems to me to be far from a prominent symptom. Still, in some cases it does occur, but these cases form a small minority of the whole; in them, I believe, there is some collateral hæmorrhage in addition to the embolism.‡ Now, this absence or slightness of the unconsciousness is very remarkable when we compare it with a hæmorrhage of like extent. A hæmorrhage into the corpus striatum sufficient to reach the speech districts, and injuring the corpus itself so far as to produce grave and abiding hemiplegia, is always attended with decided, if not with serious, coma, with coma lasting, perhaps, for several hours, and accompanied with more or less stertor.

* Embolism often occurs after or during some effort, or during an attack of palpitation.

† I have just seen a very interesting case of this kind. Mrs. H., about forty years old, and of healthy appearance, had rheumatic fever seven years ago, and has now heart mischief. Nine months ago, on rising from her breakfast-table, felt bewildered and fell. Unfortunately, she was at the moment alone. She arose again, feeling in a dream, and again fell. Three times she essayed to stand and fell, but on the third occasion she managed to fall into a chair and ring the bell. She is sure she never lost consciousness, but was bewildered and "dazed." When her friends came in they found her quite hemiplegic on the right side, and also speechless, or nearly so, but not unconscious. She is still severely paralysed on the right side, and talks with much hesitation.

‡ Embolism may, of course, be followed soon by "red softening" in the hemisphere, when there may be serious disorder of consciousness.

So far for the symptomatology; let us now inquire into the pathology of the affection. Embolism occurs in one place where we can see it—namely, in the central artery of the retina; and I have been in the habit of collecting all the observations I can find of this disorder as illustrative of the same process in the encephalon.* I have also had the opportunity of seeing three cases—one which was shown me by Mr. Teale, another which I watched myself for a long period, and a third, which, however, was of somewhat doubtful origin, but probably embolic. Now, the phenomena in these cases are—

1. Instantaneous, or almost instantaneous, loss of function.

2. Sudden emptiness of the arteries and capillaries, and more or less of the veins.

3. Œdema of the parts deprived of supply, which œdema comes on gradually, and, in cases seen early, amounts to little more than a slight haziness around the yellow spot.

4. A tendency in the later stages to hæmorrhages from collateral vessels (peripapillary and choroidal.)

5. Ultimate thickening of the adventitia of the vessels and fatty degeneration of the retinal tissue, with deposit of cholestearine (Schweigger, Augenspiegel.)

I think we may fairly assume that the changes in the encephalon are of the same kind—namely, sudden emptiness of the arteries and corresponding venules, with some momentary deficiency in the contents of the sinuses, œdema of the affected parts, tendency to collateral hæmorrhages, and instantaneous loss of function.

Now, such being the pathological conditions, how are they related to the symptoms? Instantaneous loss of function of course is itself a symptom, and I merely mention it in the present connection because we are enabled to see from the changes in the eye, which we can follow, that the loss of function is immediate. The promptness and severity of subsequent hæmorrhages seem to depend upon the strain on collateral vessels. For example, in embolism of the mesenteric arteries, I believe, abundant hæmorrhage always occurs. In the eye, on the contrary, where collateral vessels are few and small, hæmorrhages are few and small. In the encephalon we not infrequently find a tendency to hæmorrhage, and hæmorrhage, when it occurs, produces by its pressure anæmia

* Comp. especially Liebreich, "Deutsche Klinik," 1862, No. 50; and Atlas, p. 23.

and loss of function in neighboring parts over and above loss of function in the parts directly cut off from the circulation. There was this tendency to hæmorrhage in the case recorded by Professor Niemeyer. Lastly, as to the œdema. To this Professor Niemeyer attributes the unconsciousness, supposing that it is the agent of pressure upon the hemisphere or brain proper. Now, a study of embolism in the retinal artery shows us that the œdema, so far from being immediate, creeps on somewhat slowly,* and that a patient seen soon after the accident presents but little œdema. This œdema occurs, then, not as a "serous apoplexy," but as a gradual infiltration or soaking of the tissues, which is in some way consequent upon the emptiness of their vessels. The œdema may be partly due to a change in diastatic relations; but, I think, in the encephalon it is chiefly compensatory, and is to be likened to the emphysema which compensates atelectasis in the lung. An arterial region is emptied, collapse follows, and we sometimes find, in addition to local œdema, an excess of fluid, which may be blood-tinged, in the subarachnoid spaces or in the ventricles, with or without an evident accumulation of venous blood in neighboring parts. The greater degree of exudation is not seen, I think, in embolism of the lesser vessels, but is recorded in embolism of the carotids.

Œdema, then, is, I believe, a compensatory process subsequent to the plugging; is not a cause of pressure upon surrounding parts, but is a support to parts which are in danger of collapse. Hæmorrhage, again, is, in the eye, a late process, and never simultaneous with the embolism. I believe the same is true also of the encephalon. Hæmorrhage therefore, is not often a prompt cause of pressure upon the hemispheres in these cases; so that both clinical and pathological experience lead me to deny that unconsciousness is a grave symptom in Silvian embolism, and to maintain that in this the symptoms of Silvian embolism differ from those of encephalic hæmorrhage in the same region and of equal extent.

I admit that, although in some cases of Silvian embolism there is no unconsciousness at all, unless a transient bewilderment be called unconsciousness, yet in many cases there is no doubt an interval of unconsciousness, though far less than in a case of hæmorrhage of

* "Einige Stunden," (Bessig,) or, "am folgenden Tage nach Beginn der Erkrankung," (Liebreich.)

equal extent. What is the cause of this transcient unconsciousness? Now, as this symptom is sometimes absent, and, if present, is present in very various degrees, there are probably two or more causes at work which may alone or together throw the action of the hemispheres or cerebrum proper into temporary abeyance, the caprice of the symptom being probably due to some want of uniformity in its causation. I believe that unconsciousness may be due to one or both of the following causes:—

1. That shock, which in the whole encephalon seems by a certain sympathy, as it were, to echo the shock of sudden injury to any one of its principal parts. It is a matter of common experience in medicine, and likewise in experimental pathology, that partial injuries, if slowly induced, may be unfelt by neighboring and connected parts; but that, if suddenly induced, they are followed by great disturbance of such other parts. This disturbance is shown in losses of sensibility, in rotatory movements, in vertigo, and the like. In this way, it seems to me, that the sudden collapse of the mesocephalon in Silvian embolism may be echoed in the hemispheres and thus give rise in them to some transient molecular disturbance and some transient change in corresponding function. It seems certain that the sudden emptying of important bloodvessels cannot take place without collapse in the parts cut off and dislocation in the parts which are near them.

There must be a moment of increased tension in all the encephalic arteries at the time of the plugging of the Silvian artery. The next heart-stroke and the next systole of the carotids is expended upon a smaller extent of surface than before. In cases where the vessels are diseased prompt hæmorrhage might occur in this way, and would occur rather in parts whose normal resistance is lessened —in the parts, that is, which surround the Silvian region, and which, by the collapse of this region, are deprived of their normal support. But it is merely to the increased fulness of the vessels in the hemisphere above beyond the Silvian region to which I would especially refer as a consequence of the temporary increase of strain, and which would produce a momentary effect of concussion when the extra blood is thrown into them from the carotid, whose calibre remains unchanged.—*London Med. Times and Gazette.*

GLOSSO-LARYNGEAL PARALYSIS.

Dr. Wilks in "Guy's Hospital Reports," gives an account of four cases of this affection, in one of which, a post mortem examination was made by Dr. Moxon. In this case, which was complicated by the co-existence of progressive muscular atrophy, the characteristic symptoms of this form of paralysis were present. The orbicularis oris was perfectly paralyzed, so that the saliva escaped from the mouth; the buccinators were paralyzed: the patient had lost power over the tongue, and his speech was scarcely intelligible. There were other symptoms present referable to the progressive muscular atrophy. The post mortem showed atrophy of the roots of the hypoglossal, of the inner roots of the spinal accessory, and of the whole of the roots of the anterior spinal nerves. The anterior half of the spinal cord showed atrophy, and hardness of the white substance, the grey substance being enlarged and reddened.

There was a red-grey change visible in the floor of the fourth ventricle, involving the nib of the calamus scriptorius, and extending upwards and outwards for half an inch.

Dr. Wilks draws attention to the dissections of Mr. Lockhart Clarke, which demonstrate the connection between nuclei of the facial, vagus, hypoglossal, and laryngeal nerves, and offers the following ingenious suggestions:—

"It appears remarkable that a small area in the medulla oblongata, or even the olivary body, coinciding with a physiological centre as that of articulation, should be picked out to undergo a rapid or slow morbid change. So remarkable is the fact that it might be worthy, in the first place, of inquiry whether or not experience justifies us in declaring that definite parts of the cerebro-spinal centres having special functions are more prone to disease than other portions of the brain and spinal cord taken indifferently; whether, indeed, all parts are not equally liable to inflammation and degeneration, but it is only when certain physiological portions are affected that we are enabled to apply our names, because then the seat of disease has made itself manifest by the implication of nerves whose function is known, whilst in other cases we are content to use such expression as cerebral or spinal disease. Although I believe this to be to a certain extent true, yet I consider it is proved

that those parts of the cerebro-spinal system which have definite physiological properties are more liable to disease than other spots taken indiscriminately; if so it may show, as is most probably the case, that the vascular supply of such physiological centres is accurately defined and circumscribed, or it may be that a centre having a definite function, being the focus of a number of nerve filaments proceeding from it for a special purpose, must soon be affected if any of these filaments be primarily attacked, seeing that morbid processes quickly proceed along given anatomical tracks. If, then, degenerative processes occur in connection with a morbid state of blood-vessels, and if the anatomical supply bears a relation to defined physiological areas, the explanation of such parts being selected for chronic disease is not so difficult; and if again morbid processes proceed rapidly along nerve filaments, we can understand also how parts having intimate relations are concurrently affected. It is a remarkable circumstance that there is no disease of the nervous system, as far as I am aware, which may prove fatal, and even show a well-marked lesion or degenerative change after death, but may have its counterpart in a functional and curable disorder. This must clearly show that, although in actual blood effusions or softenings the seat of disease may appear accidental, these centres must have been affected from a more precise anatomical reason. For example, an effusion of blood in the corpus striatum productive of a hemiplegia may appear to be accidental, but a temporary hemiplegia of a few hours' duration, as seen after an epileptic fit, and due to a derangement of a part having a very limited area, can only be accounted for on the supposition that physiological districts of the brain are anatomically defined. It is the same with diseases of the spinal cord, every variety of which may occur as a temporary disorder. Let it be said, for example, that paralysis of motion and sensation imply definite lesions of the motor and sensory tracts, then the functions of these tracts must be in temporary abeyance to account for the paralysis which occurs in those patients who perfectly recover. Again, let it be said that distinct nervous lesions are discovered in cases of progressive muscular atrophy; we must suppose that in those very severe cases which recover these same special parts of the cord were for a time powerless. Or, if in locomotor ataxy it be shown that the posterior columns of the cord have undergone grey degeneration, it must be

believed that those same parts are involved in some way in the cases which recover. All these circumstances would show that of the various nervous ailments which we meet with a large number have a determinate and fixed character owing to certain distinct anatomical and physiological centres being involved. In hysteria it is known that every possible nervous disorder may be simulated, and amongst these I have seen a tolerably fair example of labio-glosso-laryngeal paralysis."—*Dub. Quar. Jour. Med. Science.*

THE ORGANIC MATTERS IN BREATHED AIR.

THE May number of the "Journal of Anatomy and Physiology" contains a valuable and interesting paper on the organic matters contained in breathed air by Dr. Ransome, of Manchester. Notes on the researches of Dr. Angus Smith, and that gentleman's paper read the other week before the Medical Officers of Health Association, already published in these columns, have given our readers some inkling of this most important subject. Inasmuch as the sensational lecture delivered by Professor Tyndall at the Royal Institution has made the general public alarmed and anxious about the so-called atmospheric germs, it may not be amiss to lay before our readers how much and how little of such doctrines they are to believe and teach.

It really does not greatly matter who first called attention to the existence of organic matter in the atmosphere. We suspect the olfactory organs in the neighborhood of decaying animal or vegetable matter must have in all ages taught man that these gave something to the air it did not naturally possess. So also, that human breath contained something of the same kind was only too evident in advanced phthisis or cancerous or other ulceration of the mouth, or, indeed, whenever there was decaying organic matter in the respiratory tract. It was not, however, till Dr. Angus Smith hit upon the ingenious plan of washing the air to be examined and then analysing the washings, that anything like a certain knowledge was obtained of the amount of nitrogenous matter in the air. His results were certainly very extraordinary, showing that in Manchester there were as much as 7 parts of ammonia in

a million of air, as evinced by the rain-water examined. Part of this ammonia was free or capable of being formed by such a weak oxidising agent as sodic carbonate, but there was, over and above this, a certain quantity capable of development by means of potassic permanganate. This is called the ammonia of albumen, but, whilst demurring to such a title, we are quite ready to admit that its presence indicates organic matter of some kind.

The question arises, What is this organic matter, and what are its effects? Every one is familiar with the overpowering sensations felt on entering a densely crowded building when one comes straight from the fresh air, but, as has been repeatedly shown, this could scarcely arise from the amount of carbonic acid present in excess over that in the openest space, for that is but small, and we are fain, therefore, to attribute them to this organic matter. It will, however, be understood that organic mattter and germs are two totally different things. Organic matter being present in fluid and germs being deposited in this, the former will constitute an admirable nidus for the latter, and will promote their speedy development. We have, however, been taught that for organic matter to assume life some special and subtle influence is needed, but unfortunately the nature of this has hitherto remained undiscovered. One great question of the present day is whether specific germs are necessary to give this life, or whether the ordinary forces of nature, especially light and heat, are not capable of infusing this life-giving force. One thing is certain, to talk of all organic matters in the atmosphere as germs is absurd. Thus Dr. Ransome has proved, especially in cases of albuminuria, the existence of urea in air exhaled from the lung. Are we to hold that because urea is capable of being converted into ammonia, or of being destroyed by heat, that it is a living germinal matter? We should think not.

Dr. Ransome's experiments were conducted in a two-fold way—the breath exhaled was collected in a glass jar, surrounded by a freezing mixture, whereby its vapor was condensed, and its organic matter precipitated with the vapor. This was next analysed chemically and by the microscope; for our own part, we are inclined to place most importance on the latter line of research. Still, the other is undoubtedly useful as regards public buildings and large assemblies of men. By it he also found that in certain diseases the ammonia of the breath was diminished, by others increased.

It was most abundant in Bright's disease and ozæna. Examined microscopically, the air, or rather its washings, was seen to contain in every instance epithelial scales in various stages of degeneration; in one case of kidney disease they were quite granular. Few spores were found in any flesh specimen, but after standing a short time they became exceedingly abundant, especially in alkaline fluid.—*Medical Times and Gazette.*

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

OBSCURE DISEASES OF THE BRAIN AND MIND. By Forbes Winslow, M D., B. C. L., Oxon., &c., &c. Second American and third revised English edition. 1866. Henry C. Lea. Philadelphia.

ON INSANITY. By P. Martin Duncan, F. R. S., &c. The Quarterly Journal of Science. London. April 1870.

AN interesting article in the "Quarterly Journal of Science," on "Insanity," by Dr. P. Martin Duncan, F. R S., &c., gives a severe shock to some of our preconceptions on this subject. That disorders of the mind are dependent on, or associated with, physical change in the majority of instances, has long been generally believed, but that physical causes were so exclusively instrumental in occasioning them, as the statistics furnished by Dr. Duncan would indicate, is very astonishing. The exact nature of the relation between mind and matter is still enveloped in considerable obscurity, but that must indeed be an incredulous mind that refuses at this late day to acknowledge the intimate interaction between bodily condition and mental action, and we do not know where, if statistics may be relied on, this interdependance is more strikingly shown than in the article before us. Dr. Duncan endeavors to show how much more intimately insanity is related to "physical than to intellectual strain," and the per centage of insanity to which we shall presently direct attention among the pauper population of England, as compared with that of the non-pauper population, most fully sustains him. Sir Charles Bell had "never seen disease general on the surface of the hemispheres without disturbance of the mind." And physicians have everywhere recognized the fact, that the slightest change in the condition of the nerve vesical may cause derangement of the mind. The extreme delicacy of the brain structure and its intimate relations with all the organs of the body, at once

show how readily derangement of its structure may interfere with their functions, or derangement of their function occasion disorder of its structure and disturbance of its function. It is but natural, therefore, that physical causes, such as poverty with all its attendant evils, of hunger, exposure, bad food, &c., &c., should be the most frequent sources of alteration of brain substance and consequent perturbation of brain function; but the generalization seems never to have been so boldly and clearly made, and brain work and moral emotion have heretofore been more generally recognized as sources of mental disturbance, than those physical causes of functional disturbance in other organs to which the brain may be said to be peculiarly liable from its intimate association with all the organs. Dr. William Ellis, of Hanwell Asylum, in writing of 588 cases in that asylum, says that probably not more than fifty cases were curable, which, he thinks, referable to the neglect of proper remedies in the early stages of disease, and goes on to remark that "*diseased action is allowed to proceed unchecked until diseased organization has taken place*, and the patient has become incurable." Here it would seem to be the impression of Sir William Ellis, that that immaterial and spiritual something which we call thought or mind, first becomes disordered, and then in some inexplicable way occasions organic alteration. Would it not be better and more in accordance with scientific habits of thought of this day, to state that slight organic change with consequent mental disturbance "is allowed to proceed unchecked until such a degree of organic lesion is attained, as to render the patient incurable?" Surely we have passed the time when functional derangemeut is supposed to precede organic derangement; if function is not the expression of healthy organic evolution, what is it? Dr. Winslow, after quoting with apparent approval, the remarks of Sir William Ellis, thus recognizing mental disturbance without structural lesion, goes to the opposite extreme and claims mental disturbance as the invariable sequent of organic cerebral change:—"Yet the rule will be found logically true, that wherever there has been found the trace of organic cerebral change, there *must* have been disturbed mental manifestations." If the function of the brain was exclusively psychical, this would assuredly be so, but since certain parts of the brain are supposed to have peculiar functions, all we may confidently assume of any organic cerebral lesion is disturbance of that function over

which it is its peculiar province to preside, and such other perhaps as may be very closely associated with it. "How," asks Dr. Winslow, "does the occult mental principle believed by physiologists to be evolved from the brain become so mysteriously and marvellously changed from nerve to mental force, and vice versa, in the hemispherical ganglia? Is the development of psychical phenomena the result of what is termed a correllation of the two preceding modes of dinamical action, or, is mind a new creation, essence, principle or power organized or elaborated in the vesicular portions of the cerebral mass?" "What is the vis vitae, and how is it associated with, and dependent upon, organized structures? What are the relations between the intellectual and vital manifestations? Are not all these great problems of organic and psychical life still, with physiologists, sub judice? Have we arrived at any exact knowledge of the substratum of nervous matter? Are we not obliged to express our ignorance of the principle of vitality as well as of intelligence? Do we know anything of its nature or essence? Is not our knowledge of mental as well as of vital phenomena, entirely confined to an acquaintance with these powers as *manifested* during life? If our ignorance of healthy psychical conditions is so profound, is it practicable for the psychological inquirer to arrive at an accurate knowledge of mind when disturbed by disease?" Whilst all honest men must at once confess their ignorance of the "how" and "why," must acknowledge their utter inability to clearly explain the relation "between the intellectual and vital manifestations," the nature of the "principle of vitality," or to determine the exact nature of the "substratum of nervous matter.' Yet we think it may fairly be considered as established, and no longer "with physiologists, sub judice," that the vis vitae *is* "associated with, and dependent on, organized structure." Dr. Reid, in speaking of psychical investigations, says, "The labarynth may be too intricate, and the thread too fine, to be traced through all its windings, but, if we stop where we can trace it no farther, and secure the ground we have gained, there is no harm done; a quicker eye may, in time, trace it farther." If the ground we have gained, and may secure, be not that the vis vitae "*is* associated with, and dependent on, organized structure," what have we gained, and what may we secure? Surely it is not going too far to assume that life is an assemblage of coördinated functions, them-

selves dependent on organic evolution; and that disease is a perverted evolution of some part of the organism, insanity not differing in this respect from other diseased manifestations. Dr. Winslow evidently entertains the opinion that mental force is something independent of nerve force, and may be converted into it. "How," he asks, "does the occult mental principal become so mysteriously and marvellously changed from nerve to mental force, and vice versa?" How, indeed, does mental force become changed into nerve force? Before endeavoring to explain "how," it would be well to establish the fact of such change. "Mental force," as we conceive it, is an expression of nerve force, is itself one of the nerve forces, and cannot, therefore, undergo change into itself. Insanity, with the Doctor, is a cause of change in nerve structure, rather than a resultant of such change. We might, with great propriety, before attempting to answer his "how," ask, as did King Henry, concerning the apple in the dumpling, "how got the idea in" Dr. Winslow's brain? but that we know it to be an idea that has found an abiding place in many very clear minds, and from it has sprung the secondary idea that thought and all forms of intellectual strain are direct causes of insanity, rather than indirect through the physical strain commonly associated with continued and earnest mental labor. Dr. Winslow, of course, recognizes and enumerates many physical causes of insanity, such as various forms of hardening of the brain, "disordered state of the blood vessels," "capillary congestion of the surface of the hemispherical ganglia," &c., &c; but is also of the opinion that some "forms of derangement" may depend upon a disordered condition or altered action of the *psychical coördinating* principle evolved in the cerebrum which (when the brain is free from a material change and the mind not disordered,) preserves intact the unity of action and nominal balance of the intellectual powers." What this "psychical coördinating principle" is that is "evolved from the cerebrum apparently without physical change, and may become so affected as to give rise to certain 'forms of derangement,' while the brain continues free from material change," we are unable to comprehend, and, therefore, turn with a feeling of relief from this strange union of material with immaterial views, to the article of Dr. Duncan, which, at least, offers a firm resting-place from which to view this complex question. "It is still usual," says Dr. Duncan,

"to connect lunacy with an indefinite something, which implicates Providence and the dependence of the mind upon cerebral action. due reservation being made that there is nothing material between them. The present system of the treatment of the insane is founded upon these remarkably indefinite ideas, but, it is a satisfaction to find that even the Commissioners in Lunacy, who originate with the keeper of the Queen's conscience, have at last had the courage to associate mental perversion with physical decay. It is difficult to form comparative estimates between civilized and uncivilized races, because of the imperfect observation to which the latter are subjected. Yet the rarity of insanity among uncivilized races, seems to be well established. Dr. Duncan refers to the work of Drs. Bucknill and Tuke, who quote the testimony of Dr. Moreau in reference to insanity in Egypt. They found an insane asylum in Cairo, but in Alexandria, with a population of 80,000 or 90,000, "there was not even a ward assigned to the insane," and he asserts that insanity is very rare. Dr. Gregson, Surgeon-in-Chief, saw but one case during ten years' residence in Egypt. And, furthermore, as we pass from the region of civilized life and cultivated fields, to where both the soil and intelligence of man are degraded, we find insanity less and less frequent, Dr. Moreau not having "met a single one, not even an idiot," in all Nubia. In Senaarr, Cardofan and Abyssinia, only a few imbeciles were found. The same thing is asserted of the Guinea coast. Among the Syrians, who are a very mixed race, there seems to be more insanity than among the Africans. Among the Chinese insanity is rare, except where it is referable to the excessive use of opium. Dr. Duncan thinks insanity much more frequent among the Mahommedans, "than is generally believed, and there is no doubt that those religionists who manifest their sanctity by extraordinary physical exertions and tortures, contain a large per centage of men who are not much more mad than the founder of the faithful was." The increase of insanity among the pauper population of England, is shown to be about 1,000 a year, while among the non-pauper population—a very much larger number—it is only about 36. In 1868-69, the number of pauper lunatics admitted into asylums in those years, was 26,363, and 28,728, respectively. But this return does not refer to the pauper lunatics, for the workhouse contained 7,963 lunatics in 1859, and 11,181 in 1869; and there were 5,798

insane paupers in 1859, living with their relatives, and 6,987 in 1869. Thus the whole pauper lunacy of England and Wales amounted to 31,782 cases in 1859, and 46,896 in 1869. The population in 1859 amounted to 19,686,701, and in 1869 to 21,869,607, that is to say, with an increase of population of 2,182,906, there were no less than 15,114 pauper lunatics. In the corresponding time, and with the same increase of the general population, there was a gross increase of 840 cases among those who came under the notice of the commissioners as private patients in asylums, and at home with their friends and committees. That many cases of non-paupers at home and among friends, escape notice, is probable, but Dr. Duncan thinks this number is compensated by the cases of dementia among paupers who are not under supervision, and that the general fact that a great increase of lunacy among paupers with little or no increase among non-paupers, is established by these figures. That there is an increase of lunacy, was contradicted in 1861 by the Commissioners in Lunacy and by the late President of the Medico-Psychological Association. In 1869, Dr. Lochart Robinson wrote that the "alleged increase of lunacy is a popular fallacy unsupported by recent statistics." He shows that from 1847 to 1867, the total nnmber of pauper lunatics had increased from 17,952 to 42,943, and that in 1847 there was one pauper lunatic to every 880 of the population, while in 1867 it is one to every 494. But both he and the president referred this apparent increase to more accurate observation, and the larger number of cases brought under supervision. To which Dr. Duncan replies, that since 1862, no material change has taken place in the manner of estimating the insane population, and that no important sources of error existing at that time have since been removed, and that, therefore, the rate of increase shown by the statistical table, is not merely apparent, but actual. The commissioners, roughly estimating the population of England at 20,000,000, of which 1,000,000 are paupers, and 19,000,000 non-paupers, find that from the 1,000,000 pauper population, there is an annual increase in asylum patients of 5,049, whilst from the 19,000,000 non-paupers, there has been an increase of but 36. This is a most surprising statement, and the commissioners are certainly justified in stating that: "Making very liberal allowance for the pauperizing effects of lunacy, and the consequent removal of a

considerable number of patients from the independent to the pauper class, we are thus forced to the conclusion that insanity is essentially a *disease not of the overstrained intellectual or emotional faculties, but of the depraved bodily condition, which, for the most part, is dependent on insufficient or inappropriate food, irregular living, overcrowded dwellings, long-continued nursing, overwork, fever, or any similar causes of bodily debility.*" Ireland affords a particularly good illustration of the fact that physical privation has a far greater influence than intellectual or emotional strain. Whilst the agricultural wealth of Ireland has been steadily increasing and the population decreasing, the general condition and number of the poor have remained very much the same. Pretty accurate returns are received, showing the number of paupers who do, and who do not, receive relief, and further, that there has "not been a corresponding decrease in the number of alienates." Taking the city and county of Waterford as fairly representing the general condition of Ireland, the following statistics furnished by Dr. McCabe and quoted by Dr. Duncan, will help us to a tolerably correct estimate of the condition of the agricultural portion of that unhappy country. "In 1851 the lunatics of all classes in Ireland, numbered 15,098, being, in the proportion, of 1 to 433 of the population, which was 6,552,385. Ten years later, in 1861. the population numbered 5,764,543, a decrease of 12.20 per cent. The number of the insane then amounted to 15,947, or, 1 in 361 of the population." The city and county of Waterford comprise an area of 721 square miles, which is 461,553 acres, of which about 325,000 are arable; 105,000 uncultivated; 23,000 in plantations; 15,000 in towns, and nearly 6,000 under water. In 1851, four years after the famine, the population of the district amounted to 164,051. The number of insane were:—In the asylum, 121; in workhouses and gaols, &c., &c., 61; at large, 56. Total, 238. Ratio to the population, 1 in 689. In 1861, the population of the district amounted to 134,336, a decrease in ten years of 29,715. "The insane number:—In the asylum, 135; in workhouses and gaols, 69; at large, 182. Total insane, 386. Ratio to the population, 1 in 348. In 1868, with a further decrease of population, the insane numbered:—In the asylum, 167; in the workhouses and gaols, 90; at large, 120 Total, 377. Ratio to the population, 1 in 358. The increased number in asylums was due to acts

of Parliament. For ten years—to 1861—there was an actual increase, and no considerable increase since then. The whole number of the insane population of Ireland for the years 1867 and 1868, as shown by returns, was, for the first year, 15,650, and for the second, 16,018. A steady decrease in population has been shown from 1851 to 1861, and there is a strong presumption that continued emigration has occasioned a like decrease since then, so we are warranted in assuming an actual increase of insanity."

Not less startling is the comparison between the old and new systems of treating the insane. So far from proving beneficial—the elegant asylums, with luxuriant grounds, costly furniture, tasteful decorations, expensive amusements and tolerant kindliness of the new system—return a smaller per centage of cures than were returned under the old system of close confinement in prisonlike buildings, without recreation of any kind, and comparative small expenditure of money. Dr. Pritchard, thirty years ago, gives, as the result of Dr. Burrow's treatment, 81 per cent. of cures, which, he says, "coincides nearly with the statement of Dr. Willis." Dr. Jacobi, in 1830, cured 40 per cent., and kept them under observation long enough to assure himself they were cured. Esquirol gives an estimate of nearly 50 per cent., based on the result of treatment in 5,360 cases treated between 1798 and 1813. In 1825, a report made officially in Paris, states that the cures for the three preceding years, were 34 per cent. Esquirol found that in England, between the years 1748 and 1814, the cures amounted to 33 per cent., against 50 per cent. in France. At Bethlehem Hospital, from 1819 to 1833, the cures were more than 50 per cent. In the Stafford Asylum, from 1818 to 1828, there were "about 43 in 100 admissions." In Wakefield County Asylum, from 1819 to 1826, 42 per cent. were cured. "In Lancaster County Asylum, from 1817 to 1832, the cures were about 40 per cent." In the Gloucester Asylum, from 1823 to 1832, 40 per cent. were dismissed cured. The same result obtained in the Retreat, near York, from 1812 to 1833. During these periods the "treatment of the insane was, so far as comfort and science were concerned, at a very low ebb." "The magnificent period has lasted from 1835 to this day." Let us now see the result of treatment during the last thirty years. In Somerset County Asylum, from 1848 to 1868, the cures were 42 per cent. In the Scottish Asylum they number from 37 to

40 per cent. "The average per centage to admission in English asylums, during the last ten years, has been for the county and borough asylums 33.93, and for the private licensed asylums of the metropolis 27.60." It will be seen, then, that whilst "every other disease has been less persistent and has been more curable, insanity remains as a dead weight on the statistics of our social miseries." Our fine asylums have even a less degree of success than was obtained under the old horrid system. To refer these results to the medical treatment or to the comfort of the asylums, Dr. Duncan justly remarks, is simply absurd. He is disposed to refer the small number of cures to hereditary predisposition adding to its intractable nature, and to the influence of tubercular disease, which he seems to think is occasioned by the "depressing effect of association and of the want of physical labor," and which, he says, is twice as fatal amongst chronic cases of insanity in both sexes to that of the adult male and female population of England in 1866. The general increase of insanity is referred to the increasing suffering among those with whom "the wants of primitive condition of mankind are superadded to the miseries of our social state; and the poverty, which is hardly ever to be cast off, prevents that healthy direction of the mind and senses which the early hunters enjoyed, but which appears to be incompatible with the present state of things." Dr. Duncan considers the whole asylum system, old and new, except in cases of mania and where there is a tendency to suicide, a failure, and recommends as a substitute the insane colony system, or the "village and cottage plan foreshadowed by the insane colony of Gheel," with regular outdoor employment, under the supervision of keepers. The culture of land being specially adapted to their physical and mental need, for which purpose "the same staff of officials would be necessary. The dreary walls, the awful sameness of surroundings, to the close company of fellow-lunatics sadly differing in mental peculiarities, would be got rid of, and the restraint would be reduced to its minimum." It is a somewhat sad commentary on this suggestion to have to add, that in the insane colony of Gheel the per centage of recoveries has not been greater than in the English asylums.

T. S. L.

ANATOMY, DESCRIPTIVE AND SURGICAL. By Henry Gray, F. R. S., etc. The drawings by H. V. Carter, M. D., with additional drawings in the second and later editions by Dr. Westmacott. The dissections jointly by the author and Dr. Carter. With an Introduction on General Anatomy and Development, by T. Holmes, M. A. Contab, etc. A new American from the fifth and enlarged English Edition. With four hundred and sixty-two engravings on wood. Philadelphia: Henry C Lea. 1870.

The anatomy of Mr. Gray is so well known, and so highly appreciated, that the simple announcement of a new edition will probably be all the information the profession need. The work is incomparably the best of its class extant, and no practitioner of Surgery or Medicine can afford to dispense with it. To refresh one's memory in time of need, its capital illustrations and admirably arranged text, make it the best adapted book on anatomy we know of. But, while admitting these excellencies, we are far from sure that the work is well calculated to serve as a text-book for students. To compel the first course student to read through the 850 pages of minute description of muscles, ligaments, etc., is to impose a task that cannot but be a drudgery, and of but doubtful utility. If the two or three years of study, could all be devoted to anatomy alone, the work of Mr. Gray might be studied closely with advantage. But, where so many branches of science must be learned in so short a time, this minute book-study of anatomy must be harmful. It seems to us that it would be much wiser to compel a more thorough practical course of anatomy than is now usual, and rely less upon plates and text. To burthen the memory with the isolated facts of anatomy, can never give the student that practical knowledge that is the first requisite of the successful practitioner.

We hold that the usual mode of studying this branch of science is not only wasteful of time but positively injurious to the mind, cramping its scope and tending to a habit of looking at facts in their individuality rather than their relations. While therefore we cannot too cordially commend Mr. Gray's book to all working Surgeons and Physicians, we do not advise its use as a text-book for students.

The new feature of this last edition is an Introductory chapter by Mr. T. Holmes on General Anatomy, with "a short description of the chief processes of the development of the ovum, and of the structures characteristic of the fœtal state," a change that we think of very doubtful propriety. H.

RENAL DISEASES: A CLINICAL GUIDE TO THEIR DIAGNOSIS AND TREATMENT. By W. R. Basham, M. D., Fellow of the Royal College of Physicians, etc., etc. Philadelphia. Henry C. Lea. 1870. pp. 304.

Dr. Basham, undaunted by the many excellent works on urinary disorders which have been published in the past few years, and without anything new to offer except in the arrangement of his material, has succeeded in producing a book that we believe will be found a valuable assistant to the practitioner, and guide to the student. The work is divided into three parts, the first embracing that group of "diseases marked by symptoms more or less of an inflammatory character; excited by various causes, and indicated by bloody, albuminous, or purulent urine; the urinary sediment often exhibiting specific microscopic objects." The second treats of "renal diseases non-inflammatory, without primary symptoms of inflammatory action; urine albuminous, rarely purulent; sediment containing specific microscopic objects; casts of the uriniferous tubes; diseases chiefly characterized by evidence of degeneration or decadence of the tubular, cellular, and vascular elements of the kidneys; fatty, granular, fibrinoid, or amyloid, occasionally associated with, or as the sequel to, obstructed circulation through the lungs, heart, or liver." The third part of the work is devoted to a description of "the properties of the urine, physical, chemical, and morphological, significant or otherwise of renal disease."

The character of the work is practical, its object being to clearly set forth the symptoms of the various urinary disorders, with the indications for treatment, avoiding discussion of the different pathological theories, that so encumber most works upon this subject. The typographical execution of the book reflects credit on the publishers, except that the illustrations are not so clear and good as they should have been.

MISCELLANEOUS.

Does the Maternal Mental Influence have any Constructive or Destructive Power in the Production of Malformations or Monstrosities at any stage of Embryonic Development.—The "American Journal of Insanity" for January of the present year contains an elaborate and well-considered article on this subject by Dr. G. J. Fisher, of Sing Sing, New York.

The following is a summary of the conclusions at which the writer has arrived by his inquiries, observations, and reflections on this subject:—

1. That traditional superstition has perpetuated the notion that malformations are the result of maternal mental emotions.

2. That the medical profession is in no inconsiderable degree responsible for the existence and continuance of this popular error.

3. That various intense mental emotions are common with gestating women, and apprehensions of malformation of their offspring exist in the minds of a large portion, yet abnormal births are extremely rare.

4. That there is nothing like law in the alleged results of maternal mental influence in the production of malformations.

5. That the occasional apparent relation of cause and effect is due, in most instances, to accidental coincidences, which would be far less frequent if the facts could be obtained *previously* instead of *subsequently* to the birth of the child.

6. Coincidences are not sufficiently numerous and authentic to warrant a rational belief in the origin of monstrosities from the perturbed emotions of the mother's mind.

7. Like causes produce like results; whereas we find that in a series of cases of any special variety of malformation, mental emo-

tions, arising from a considerable number of dissimilar objects, even of the most diverse character, are assigned as the cause.

8. In a large proportion of the cases of malformation no mental or even physical explanation is offered by the parents or friends.

9. There is no relation between the number and character of the mental emotions and apprehensions of pregnant women and the actual frequency and variety of malformations.

10. That some of the assumed causes are alleged to have operated upon the embryo or fœtus subsequently to the normal period for the evolution of the part which is found to be the seat of the malformation, thereby implying a destructive as well as a metamorphosing power in the mental emotion!

11. That the alleged resemblances of various congenital maculæ to fruits and animals, are either accidental, as in the cases of rocks, the outlines of mountains, and the forms of clouds, which exhibit the profile of the human head and face; or they are the result of pure imagination and fancy on the part of the observer. The same is true of the alleged resemblances of more important parts or members to the corresponding parts of animals.

12. Malformations identical in kind and in degree recur again and again in the human subject, and admit of a systematic classification. They are not infinite in variety, but definite and distinctive.

13. Every form of malformation and monstrosity which has occured in the human subject has had its exact morphological counterpart in the lower animals, as well in the oviparous as in the viviparous.

14. The vegetable kingdom produces analogous anomalies of organization to those found in the animal kingdom, viz: dwarfish, gigantic, distorted, and double malformations.

15. The only rational and scientific explanation of abnormal development is to be sought in the realm of pathological histology. The pathology of fœtal life presents a rich field for hopeful research.

16. Monstrosities are not the result of *violations* of embryological or physiological laws; they are the product of *embarrassments* to normal development.

17. Vices of conformation and monstrosities are due to either retarded, arrested, or excessive development.

18. That in plural conception it is particularly absurd to suppose that a mental emotion can be conveyed to one fœtus in the womb

and be inoperative upon another, whether the emotion be transmitted through the medium of blood, by undiscovered nervous filaments in the funis, or by a sort of animal electricity or magnetism directly across tissues.

19. The development of united-embryos, or double-fœtuses, is now positively known to follow definite laws, including homologous union, unity of sex, and right and left bilateral symmetry.

20. Monstrosities never consist of parts or organs which do not belong to the species which is the subject of abnormal development.

21. Monstrosities may arise from either abnormalities of the generative matter of one or both parents, abnormalities of the maternal organism, or from diseases and abnormal states of the membranes of the ovum and of the umbilical cord.

22. That the time has fully arrived for the explosion of the popular error which attributes anomalies of organization to mental emotion.

23. That it is the duty of the medical profession to endeavor to correct this popular error by teaching the people the absurdity of their "unquestioned faith" in such an inadequate power to pervert or destroy the laws of organic development.—*Am. Jour. Med. Sci.*

Further Notes on the Use of Chloral.—Dr. H. Bence Jones writes as follows to the editor of the London "Medical Times and Gazette," on the use of chloral:

"In a letter which I have lately received from Dr. Oscar Liebreich he gives me some further information on the treatment of disease by the hydrate of chloral. I hope he will before long have some important facts on the use of the hydrate of bromal to communicate to your readers.

"I have in no case used more than sixty grains of chloral for one dose. Dr. Liebreich states that 200 grains may be given for one dose. I have never used it as an injection beneath the skin. He has used it in 7-grain doses frequently. He tells me he has given it every night for three months without any loss of its property of causing sleep. I have only given it for a few nights consecutively. The largest quantity I have given in the shortest time has been 150 grains in six hours, for the most intense neuralgic pain with violent gout in the foot. Besween the first and second dose of thirty grains there was only one hour, afterwards two hours.

Broken sleep of nearly ten hours was produced, and entire forgetfulness of the pain and of the time, so that the two days were thought to be only one. No bad symptom was produced, but there was no great good done to the gout, although the neuralgia was taken away.

"In a patient who was liable to gouty sciatica and had frequently got instant relief from the subcutaneous injection of morphia, I tried what doses of thirty grains of hydrate of chloral would do. Two doses with an hour's interval gave sleep for many hours. A third dose was then taken and it caused heaviness of the head and drowsiness the greater part of the next day. The sciatica was stopped.

"Epileptical headache, returning at very irregular intervals, has been stopped over and over again in one patient by a dose of chloral that caused eight or ten hours' sleep. Large doses of bromide of potassium were given daily for weeks with great good effect in preventing the frequency of the attacks, but no medicine and no alcohol was able to stop the headache when it began, until the chloral hydrate was tried in September, 1869. Since that the patient has rapidly got better, and now takes only a very small quantity of bromide, and very rarely uses the chloral. Even the epileptic convulsion may be stopped by the chloral if I may believe the report I get of one patient.

"The rapidity of action of the hydrate of chloral is very great when the stomach is quite empty. It is very different when the medicine has to wait for the solution of the food. Probably it acts much more rapidly when given in sugar and water than in mucilage of gum. Over and over again I am told that it causes sleep in less than five minutes. A patient who for years had habitually taken opium slept all night with thirty grains of hydrate of chloral. Two patients, who were accustomed to take full quantities of brandy, when given the hydrate of chloral to cause sleep, declared that they were obliged to give up the brandy, as it caused oppression of the chest and head. They got good and full sleep with thirty grains of chloral, but after some days they chose to give up the chloral and return to the brandy, saying they could not take both at the same time.

"With regard to any bad effects of the medicine, I may almost say that I have met with none at all. The very strong taste, which

soon goes off, has frightened two or three patients, and they have objected to any further trial of the medicine, saying that it heated and headached them. Some of the cases of neuralgia in which I have used it have not lost the pain nor slept as I expected. When it has been taken in the early morning or in the day—when disturbing causes have prevented sleep—I have been told of uncomfortable headache, lasting for many hours, but I have never heard of sickness nor constipation, nor even loss of appetite, in the great number of cases that are within my own knowledge. Many patients, after eight or ten hours' sleep from a 30-grain dose, have thought themselves lower and weaker than they would have been if they had not taken the chloral the previous night, but neither the pulse nor tongue showed any confirmation of their sensations. I have had two very aged patients cause alarm to their friends by the long and sound sleep which thirty grains of the hydrate gave when other remedies had failed. That a medicine should be able to do so much good without doing any harm is so contrary to the ordinary therapeutical law that the suspicion will arise that more has to be learned about it.

"With regard to the mode of action of the hydrate of chloral, perhaps Dr. Liebreich may be led to change his present opinion. The discovery of the effect was made by means of a beautiful idea. If it could be shown that the alkali of the blood is sufficient to decompose the hydrate of chloral, and that the chloroform combines with Dr. Liebreich's protagon of the nervous substance, forming a temporary compound, less capable of the peculiar motion of the nervous substance than the nerve substance itself, Dr. Liebreich would have made a noble advance in therapeutical rationalism; but the hydrate of chloral is not easily decomposed by weak alkaline solutions, even at the boiling temperature, and it is very possible that the hydrate of chloral acts as such, and not altogether or at all as a generator of chloroform. Possibly new chlorals, and other compounds of chloral than the hydrate, may by their actions give more knowledge as to the mode by which the hydrate of chloral produces its effect.

"Meanwhile, there is some fear that variations in the preparation may cause uncertainty in the effects produced, and the enormous demand that now exists may lead to the sale of hydrates of chloral that may have very different actions from that hydrate of which I have been writing."

Liebig on the Acetous Fermentation.—Some time ago, we referred to an important paper of Liebig's relating to fermentation in general, and also to the source of muscular force. At that time Part I., devoted to the alcoholic fermentation alone, had appeared; Part II. and Part III. have been recently published.

Part II., on the acetous fermentation, enforces the same princicles as Part I., and, indeed, affords a more striking illustration of Liebig's characteristic views respecting the entire class of phenomena under discussion than the former chapter

Liebig begins with the statement that the right method of investigating either physiological phenomena or mixed phenomena—such as the process of fermentation—consists in determining the physical and chemical laws which are in operation, and that all we can hope to understand respecting such phenomena is confined to the immediate knowledge of these laws. "To explain a physiological phenomena means, therefore, above everything else, to establish what physical and chemical laws operate in it, and further investigation has, for its task, to determine how far this operation extends."

The chemical events which take place in the process of fermentation are accordingly referred to a physico-chemical cause—viz: to the propagation of molecular activity to neighboring highly complex and fragile chemical structures.

"This theory has met with no support, but in recent times another theory has been accepted representing the great natural processes of the return of complex organic substances to the inorganic state as consisting in the growth and nutrition of lowly organized beings. The old vital force of last century has come back in a modern dress to explain the course of very simple chemical changes."

According to Mitscherlich fermentation is brought about by vegetable organisms and putrefraction by animal organisms. Liebig is merry over the curious properties ascribed to these different kinds of vegetable beings. Thus the *Mycoderma aceti*, which, according to Pasteur, produces acetic acid, is capable of producing succinic acid, and according to Thomson may like-wise induce the alcoholic fermentation. Different observers do not concur in their analysis of the plant; Mulder says that it leaves no fixed residue on incineration, whilst according to Pasteur phosphates and alkalies

are essential constituents of it. Neither does it seem to be very easy of recognition, being hardly distinguishable from the plant of the lactic acid fermentation. The manifestations of the activity of the latter are even more wonderful, being by no means confined to the production of lactic acid, but embrace the formation of butyric acid, mannite, alcohol, and other substances. In short, though these peculiar plants are said to produce a special and peculiar product as a characteristic act of their vitality, it would appear that they are not very particular, and on occasion will produce almost any kind of organic compound.

Bearing in mind the fact, that in order to convert alchol into acetic acid, all that is requisite is that a certain quantity of oxygen should act chemically upon it, and that this chemical action is capable of being brought about by purely inorganic substances, such as chromic acid and platinum black; and that the shavings of wood employed in the "quick vinegar process" do not show any signs of the presence of the *Mycoderma aceti*, whilst Schönbein has shown that, in contact with the oxygen of the air, turpentine, ether, aldehyde, and oil of bitter almonds, exert an oxidising action (through the production of ozone, or condensed oxygen), Liebig concludes that the formation of acetic acid from alcohol does not depend on a physiological action; that acetic acid is not a product of the *Mycoderma aceti*, but of a process of oxidation.—*Med. Times and Gazette.*

Inflammation.—The "Lancet" furnishes from the "Centralblatt" the following summary of some interesting observations by Dr. Tschaussow on the process of inflammation after ligation of the artery of the inflamed part, with a view of retarding the several stages, which under ordinary circumstances proceed with such rapidity that it is difficult if not impossible to define their limits. Following the suggestions of Dr. Samuel (who had previously, to some extent, made similar experiments with corresponding results), for the sake of convenience, the experiments were made on the ears of rabbits after ligature of the common carotid or auricular arteries.

"On applying from half a drop to a drop of crotan oil with ligature of the artery (which is not a severe irritant), in from six to ten hours he usually, but not always, observed contraction of the larger arteries, followed by slight dilatation. Then, after the lapse of

some time, dilatation of the veins occurred. The current of blood, at first variable, then became accelerated, and some amount of exudation ensued, after which the current resumed its ordinary rapidity. When the same experiment was tried with the ligature, the phenomena supervened much earlier, the pulse in the arteries was scarcely visible, the exudation was less, and the temperature became lower. When the oil was applied in larger quantity, as from two to four drops, the calibre of the arteries remained contracted for a long time, causing the circulation to become correspondingly retarded. White 'vesicles,' consisting of fibrin, with white and a few red corpuscles, formed both in the veins, and (though less frequently) in the arteries. After a little while these disappeared, and the lumen of both sets of vessels became dilated, accompanied by increased rapidity of the blood-current. The amount of exudation increased, and by its mechanical pressure again caused retardation of the current. These phenomena were sometimes spread over thirty-six hours or more. If the inflammation be still more intense, complete stasis of the circulation in the arteries occurs, the blood coagulates in the ear, and this becomes cold, blue, and dry. Dr. Tschaussow considers his experiments show that, in all probability, the first change in the process of inflammation occurs in the arteries, whilst the changes observed in the veins are consecutive; and that the development of exudation is dependent on the secondary congestion. Section of the sympathetic, performed during the stage of arterial contraction or of secondary congestion, produced its ordinary effect; but none was visible when the section was made during the persistent arterial contraction which accompanies strong exudation."

On Syncope.—Professor Brown-Sequard announces that three varieties of syncope exist. Of these, one is familiarly known, namely that caused by cessation of the hearts action.

The second variety is less known, it consists in the stoppage of the respiratory movements, without asphyxia. When the respiratory movements stop suddenly in consequence of irritation of the medulla, or of the neighboring parts of the nervous centres; the heart continues, in the majority of cases, to beat with more or less rapidity and force. The stoppage of the respiration is not due to spasm of the diaphragm, or of the intercostal muscles, but to a

cessation of action in them, brought about by a cessation of action in the respiratory nervous centre.

The third variety of syncope has not been before observed, and the author merely directs attention to it, promising to explain it more fully at a future period. In making experiments on the cause of the absence of agony in sudden death produced by irritation of the vagus, of the sympathetic nerve in the abdomen, of the spinal cord, or of the encephalon, Dr. Brown-Sequard had ascertained that the venous blood was less deep in color than usual, and that it was sometimes as red as the arterial. Besides this, he observed a rapid lowering of temperature; and from these two facts, combined, he has come to the conclusion that certain of the interchanges which normally take place between the blood and the tissues, are either much diminished or altogether arrested.

It is remarkable that in animals in whom these phenomena have been produced, the vital properties of the nervous and contractile tissues persist much longer than when death has been caused by asphyxia, or by sudden hemorrhages.—*Dub. Qrt. Jour. Med. Sci.*

Uterine Therapeutics.—C. W. Frisbie, M. D., East Springfield, N. Y., writes that he has used the following emmenagogue pill in his practice many times, says the "Medical and Surgical Reporter," and, when the cases have been properly selected, with the most happy results:

℞. Assafœtidæ,
Myrrhæ - - - - aa ʒj.
Aloës soc., - - - - ℈ij.
Ferri lactatis, - - - - ʒi. M.
For lx pills. One night and morning.

Theo. Jewett, M. D., Professor of Obstetrics, Bowdoin Medical College, recommends the annexed for dysmenorrhœa:

℞. Camphoræ, - - - ʒijss.
Extracti belladonnæ,
Quiniæ sulphatis, - - - aa ʒss.
Pulveris acaciæ, - - - q. s. M.
For lxxx pills. One to be taken every four hours until relieved.

℞. Ext. scutellariæ fluidi,
Decocti aloës compositi, - - aa f.ʒß. M.

Relapsing Fever in St. Giles' —Dr. Ross, the Medical Officer of Health for St. Giles' district, London, says the "Medical Times and Gazette," in a very elaborate report on relapsing fever, in his district, analyses with great minuteness all the facts and circumstances connected with the disease, and draws the following inferences:

"1st. That there is a specific poison that induces relapsing fever.

"2d. That among personal and domestic influences, privation and overcrowding are the most powerful causes that call the virus into activity.

"3d. That the epidemic character of the fever is chiefly determined by

"*a*, Infection both by personal contact and fomites.

"*b*, Meteorological phenomena, among which the most important are, a temperature ranging between 26.3° and 54.2°, a deficiency of ozone in the atmosphere, high winds blowing from west to south, and heavy rainfall.

"These inferences are offered as the result of inquiry into the facts recorded, and are open to question. The collocation of a larger number of facts may justify the correction or qualification of the inductions I have arrived at; yet I cannot but believe that this investigation of the phenomena of the epidemic as observed in St. Giles' district will prove useful to sanitary science."

Thoracentesis.—Mr. Berkeley Hill thinks this operative procedure for the cure of pleuritic effusion has not received sufficient attention. In an article in the "British Medical Journal" he states that the following points demand consideration:

1. The removal of fluid from the pleura need hardly ever cause much danger or suffering. 2. Whenever effusion is copious, it is prudent to withdraw it to relieve dyspnœa and ward off a sudden fatal termination. 3. The usual mode of leaving chronic effusions to natural resorption may be advantageously replaced by tapping, whenever the condition of the patient is stationary, and the pyrexia abated; the longer the fluid has existed the more urgent becomes the need for tapping, to enable the lung to expand before it has lost its power of doing so. 4. After tapping serous effusions, the wound should always be closed, at least until repetition of the evacuations had shown that cure would not be so effected; then,

to tapping, injection of iodine or other irritants should be added, but in these cases the admission of air should be scrupulously avoided. 5. Where the fluid is purulent, the admission of air is immaterial, provided a free and continuous exit is maintained for the pus; and this free drainage is a cardinal point in the cure. One case illustrates the benefit from continued drainage by a tube passed across the chest through two openings; the second, the benefit which even cases of long-standing empyema, where the cavity will not contract, may obtain from frequent washing out with water or other injections. The third showed how readily a serous effusion may be absorbed, even during the progress of rapid pulmonary phthisis, and in this case evacuation gave temporary relief of considerable amount, though it did not cure the effusion.—*Med. Archives.*

Treatment of Nævi by the Introduction of Red-hot Needles.—Mr. Croly communicated to the Surgical Society of Ireland, (see "British Medical Journal," April 2, 1870,) a remarkable case of nævi occurring in a very young child. In connection with the face and head there were four distinct vascular tumors. One was situated on the lower lip, a second in the right parotid region, a third on the back of the neck, and a fourth on the tongue. The first-mentioned was treated by plunging red-hot needles through its substance. This method of treatment answered admirably, and was followed, curiously enough, by the spontaneous cure of tumors two and three. Mr. Croly was inclined to attribute this happy and unlooked-for result to the influence of the operation on the sympathetic nerve-supply of the nævi.—*Practitioner.*

Vaccinal Syphilis.—The "Lyon Médical," states that two instances of syphilis transmitted by vaccination have been recently observed in the Lyons Military Hospital. Two soldiers, hitherto exempt from any sign of syphilis, had been vaccinated, as is the rule, on admission into their corps. The vaccine pustules were very long in healing, and became transformed into syphilitic chancres; these were followed by secondary symptoms, and especially ecthymatous pustules, which at a later period were developed on the limbs.

The Transportation of Diseases.—It is of the highest importance for physicians to determine whether a contagious disease can be transported, by a healthy individual, from one family to another. In a late number of the "Union Medicale," Dr. Herard cites an instance in which, apparently beyond question, this was the case. A woman, mother of four children, paid several visits to a boarding school, a quarter of an hour's walk distant, where one of her daughters was suffering from varioloid. In a few weeks her children at home were attacked with the same disease, no exposure whatever being discoverable. Dr. H. records a similar instance of diphtheria, and we remember when practicing in the country districts of Pennsylvania, an instance of scarlet fever breaking out in a secluded family of children, which was, evidently, traceable to their physician. He had been attending a severe case of the disease nearly three miles distant, and at the same time attending the mother of this family.—*Med. and Surg. Reporter.*

Easy Mode of Examining the Fauces.—M. Guillanmot states that the throat may easily be examined during the act of yawning, and with much greater ease and convenience to the patient than by the employment of any depressor of the tongue. After two or three trials the yawning can be voluntarily induced; and the practitioner should exhibit to the patient in his own person how easily it is brought about. Children readily fall in with the plan.—*Rev. Medical.*

The Spread of Cholera.—Precautions are being taken to prevent the spread of cholera by the Meccha pilgrims. The Sultan has sent a commission to found a lazaretto near the straits of Bab-el-mandeb, under the care of a French physician. The cholera is already severe in Persia, and ships from Persian ports undergo ten days quarantine.

Chloral and Strychnia.—Dr. Liebreich, the discoverer of chloral, says that chloral and strychnia are mutually opposed in therapeutic action, so that each neutralizes the poison of the other. Doses of chloral sufficient to kill a rabbit were cured by deadly doses of strychnia.—*Med. and Surg. Reporter.*

EDITORIAL.

IT cannot be gainsayed that the city of Baltimore is now the commercial centre of the productive South and West. Located on an isothermal line, in which neither the frigid cold of winter nor the excessive heat of summer militates against the steady current of commerce or the well-being of man, her ascendancy bids fair to be progressive and permanent. The important considerations of location, of sanitary advantages, and of the facilities of living, cannot be lightly esteemed in regarding the future prospects of a great commercial centre.

The history of cities that have held commercial empire in the past proves conclusively that it is not enough that a city should be a mart, rich in barter and commercial exchange; but, to maintain preëminence, must possess sanitary advantages, as well as those facilities most favorable to the well-being of man and the propagation of the species. Nor are these purely physical considerations all that constitute an empire city. Inducements to the more elevated attractions of science and of art must be offered to attract from every quarter, with the rich cargoes of productive wealth, students of science and votaries of art. Students are known to be, the world over, *poor men*. The city of Baltimore, by the facilities it affords in the cheapness of living, recommends itself preëminently of all the cities of the Atlantic slope as capable of sustaining the largest population at the least cost. While the foresight and energy

of the citizens of Baltimore have accomplished much in achieving her present commercial position among American cities, much yet remains to be done to make her the equal of Philadelphia and New York in fostering the arts and sciences.

Old predilections and prejudices must give place to the demands of science and art. Science and art are eminently practical, and the student can only be familiarized with them *by a knowledge actually induced by the senses.* Hence the importance of special institutions, in which they may be studied practically. Of American cities, Philadelphia, New York and Boston have done much to promote the study of science and art, and they have reaped a rich harvest for the cultivation expended in those fields. If Baltimore desires to rival and excel these cities in facilitating the study of the higher branches of intellectual attainments, as she has done in trade and commerce and increasing population, due care must be taken that the least of her resources, in this particular, be not neglected. The munificent donations of Peabody and of McDonough furnish a nucleus around which to concentre the essential elements of a grand structure for the promotion of science and art. Philadelphia, New York and Boston have their literary and scientific institutions, their academies and museums of natural science, and their medical schools supplied with ample anatomical and hospital facilities, and they greet all who come with every inducement to abide. Yet Baltimore, second alone to New York in commerce, is almost a laggard in the promotion of science and art. Her literary institutions lack life; her scientific institutions are mainly supported by private energy and enterprise; her medical schools, for the want of more extensive hospital facilities, are unable to enter fully into competition with New York and Philadelphia. The history of the great cities of the past shows that commerce alone is not equal to establish

the empire of a city. As it is with individuals so it is with nations and cities; their true greatness consists in moral grandeur, and in the inducements to intellectual culture and attainment. The noble and generous sympathy of the city of Baltimore for the people of the South during and since the late war between the States has established her claim to moral grandeur, and has made her the favorite city of the South. On this account Southern students would gladly remain here, if they could obtain equal advantages as in the city of New York. The Almshouse Hospital, for the poor of the city and county of Baltimore, has been for years past a practical school for students of medicine—very limited in number, it is true; but many distinguished medical and scientific men at the South have placed conspicuously in their libraries the certificates of that institution, given them by the "trustees for the poor of Baltimore city and county, to certify that they have been resident students of the Almshouse of said city and county for one or several years, during which time they have enjoyed the benefit of the practice in this institution," &c.

The recipients of these testimonials are so many witnesses to the importance of enlarging and extending like facilities to others, not only in the institution mentioned, but in all other institutions of like character in and around the city. The system of theoretical instruction in the medical schools of Baltimore is as thorough as it is in the schools of New York and Philadelphia; but, in the latter, various hospital inducements are offered, which in Baltimore are only supplied by the hospitals attached to the respective schools, which are indeed inadequate to furnish that enlarged observation so necessary for the practical study of disease.

The practice of medicine, as cultivated at the present day, is not to gratify an ideal curiosity, but with the purest

philanthropy to enable its votaries to distinguish diseases by certain signs and unerring symptoms, and to trace their course and natural history with a view of applying rational treatment. If it is true, as Adam Smith has said, that the wealth of a nation depends on its population, surely the science which proposes to watch over the physical infirmities of a nation is not undeserving of most serious consideration.

The French School of Medicine have, for the past century, enjoyed deservedly the highest reputation in Europe, which is due to the fact that the hospitals have been free to the student of medicine; and it is to the advantages thus afforded for practical instruction that we are indebted for the noble physicians and surgeons who have furnished us mainly with our present knowledge of the nature, pathology and diagnosis of disease. To enter fully upon the part performed and the influence exerted on the medical science of the present day by the masterly researches and works of Corvesart, Bichat, Laennec, Louis, Andral, Chomel, Cruveilhier, Rostan, Gendrin, Bouillaud, and a host of others, would exceed the limits of an ordinary volume. The researches upon which the writings of these men were based come to us not merely upon the faith of the men themselves, but they tell us when and where they made their observations, and how they were submitted to the rigid analysis of induction. Can such researches be compared with the loose, inaccurate reports of individual practitioners, as is often the case in this country and in England? It is true that the observations and reports of individual practitioners are better than none at all; but in this respect are they only valuable. It would be equally absurd and unreasonable to hope for an equal share of confidence for the collections of a private note book and those of a public hospital, in the hands of competent physicians, which have been submitted to rigid analysis. The hospital

resources of England—equal, if not superior, to any country of Europe for the cultivation of medical science—have never been developed fully in this particular, because of the "close corporation" restrictions imposed by the College of Physicians and Surgeons, mainly in charge of them, in regard to the admission of students for the observation and treatment of disease. Nor can it be denied that England has added her quota to medical science, yet she might, with the resources at command, have done much more. France, on the other hand, in the management of her hospitals, has adopted the only course which is at all likely to effect the great object she has proposed to herself, by giving free admission to students from every country; and by appointing medical officers in charge of the hospitals solely on the ground of superior qualifications, she proclaims to the world the maxim, "*Salus populi, suprema lex.*" Let the city of Baltimore follow the illustrious example of the French, rather than that of sickly sentimentality which has obtained with Americans and English, who shudder at the thought of exposing the indigent poor and sick to "the rude gaze" of the medical student and his experienced master; when upon the knowledge and proficiency of these same students in after years the welfare of whole communities may depend. Who will deny that every individual member of a community has a direct interest in the knowledge, proficiency and integrity of the medical practitioner; for to everyone, for himself or some other whose health and life are dear to him, the knowledge or ignorance, the sagacity or obtuseness, of the medical mind is constantly a question of intense concern. Rousseau well interpreted the common sentiment of mankind when he said—that "the vain and false declarations of healthy persons, against the utility of the science of medicine are unworthy of notice."

In France the three great epochs of life—infancy, manhood, and age—have each distinct institutions (or wards)

for the several diseases peculiar to each; and the knowledge that has been spread broadcast by the noble men who have devoted their lives to the observation of diseases in these institutions has been instilled into the minds of medical men throughout the world; and like the "quality mercy, it blesseth him that gives and him that takes." Let the city of Baltimore then, with true philanthropy, throw open her hospitals, her asylums, and all her beneficial institutions, to students, under competent Physicians and attendants; the indigent poor will receive better attention; and render the only possible return for the benefits received, in extending the experience and knowledge of disease to be irradiated as a blessing upon every individual, of the community. The empire of Baltimore in science, as in commerce, will then be permanently established.

WE have several books and pamphlets for review which will be noticed in the next number. All works which may be sent to us from publishers and authors will be appropriately noticed; but, as it is one of our main objects to inform the profession of the character and value of new books, we shall exercise the privilege of the freest criticism in all cases.

THE Baltimore Pathological Society has adjourned to the first Friday in October. The Baltimore Medical Association adjourned to the last Monday in September.

THE "Boston Medical and Surgical Journal," in its issue of June 23d, contains a letter from Dr. J. L. Sullivan in vindication of the American Medical Association.

MESSRS. ELLYSON & TAYLOR, Richmond, are the Virginia agents for the "Journal."

AT the last meeting of The Baltimore Medical Association the death of Dr. Henry A. Inloes, Jr., was announced and the following preamble and resolutions were adopted:

Whereas, it has pleased an all-wise Providence to remove from his field of labor and usefulness, our esteemed brother, Henry A. Inloes, Jr., M. D.

Resolved, That in his death our association has lost an earnest member who bid fair to shine in his adopted Profession as one of no ordinary talents; and that the community have been deprived of a kind and sympathizing friend.

Resolved, That we condole with the bereaved family in their irreparable loss.

Resolved, That these resolutions be spread upon the minutes of the association, that a copy be transmitted to the family of the deceased, and that they be published in the Medical Journals of the city.

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ORIGINAL COMMUNICATIONS.

SENSATION AS A MODE OF MOTION.

BY FREDERIC GARRETSON, M. D.

WITHIN a few years past the terms "caloric" and "corpuscles of light" have disappeared from the books placed in the hands of the student of physical science. The mysterious "imponderables" are losing even the vague and undefined forms they have worn in our conception of them as entities; and like the *genii* of Eastern fable, are exchanging their material existence for a clearer recognition as the physical *forces* of nature—as "modes of motion."

The "correlation" of these forces is the absorbing problem of physics at this day; and busy hands, directed by master-minds, are engaged in subjecting the supposed relations between the several forces to the crucial test of careful experiment.

Modern science is exacting, and grows daily more so—becomes less tolerant of any departure among her votaries from the rigid laws of inductive philosophy. No theory, however imposing or plausible, has any higher claim to consideration than its accordance with established facts;

and the theory which leaves a single fact not entirely reconciled to its statements, must remain *sub judice*, and cannot claim for itself acceptance as a full expression of a natural law.

Most of our theories of the nature and ultimate causes of the phenomena we observe are in this probationary position, and are only useful to guide and direct inquiries which they have no power to check or limit.

The student of natural philosophy—or physical science, as we now prefer to call it—has long since reached a point where he feels his progress impeded by the complex machinery of older theories; and there is now an imperative demand for a higher generalization, a more simple expression of the relation between the observed phenomena of nature.

The known laws of Motion have long been asserting their claim to embrace and associate manifestations of force, whose relations were admitted, but were not explicable, by those adhering to theories less comprehensive.

Physical research into the laws of heat, light, electricity, and chemical action, is now directed to their common relation to the laws of *motion*. Hence the phrase "modes of motion," as applied to the physical definition of those forces.

Standing upon the ground already conquered by the labors of such men as Mayer (of Heilbroun), Joulé, Tyndall, and Huyghens, it is not surprising that the student of physiology should find in the student of physics a fellow-laborer in a common field.

But the "vital force," a controlling power modifying all known physical laws, has hitherto stood as an impassable barrier between the two; and the tendency of the present is to press the construction of the bridge from the side occupied by physics.

Physiologists, approaching this chasm from a ground affording less solid foundations, may well hesitate to join

their work with that of men who can base their theories upon experiments involving questions subject to quantitative analysis.

Still, some have ventured to suggest that the "vital force" itself may be so related to other forces as to be, like them, only a peculiar expression of the general laws of motion.

It is not my purpose to attempt here the discussion of a problem so profound, but simply to examine one of the manifestations of the vital force in its relations to other forces which are more or less fully proved to be "modes of motion."

I have selected that faculty by which the animal takes cognizance of external objects; and for my present purpose I will define *Sensation* as "the perception, by an animal, of a physical change occurring in its organism."

The sense of *hearing* seems to bear the most obvious and direct relation to the motion of those forms of matter with which we are best acquainted. This motion is usually conveyed to the organ of hearing by transferred vibrations of the air with which it is in contact. But we know that the motions of denser materials more readily transmit their vibrations to the auditory nerve. In order to explain the *manner* in which this nerve conveys the impression made upon it by the motion of matter in contact with it, we are not forced to assume for it the existence of properties distinct from those pertaining to that matter. We may assume that the *motion* of material molecules is conveyed, without change, to the sensorium, and there is recognized as *sound*.

For the purpose of comparison with other senses, I will here state a few familiar facts concerning the sense of hearing:

1. For the perception of sound, the organ of hearing must be in contact with *ponderable matter*, in a state of *motion*.

The vacuum of the air-pump annihilates, to our percep-

tion, the most sonorous vibrations, but they are conveyed by the most attenuated forms of matter known to be subject to the laws of gravity. Assuming that matter may exist in forms *imponderable* by our present instruments, I may assert that such matter cannot convey to our organs of hearing the motion which is recognized as *sound*.

2. But experiment shows, that even the forms of matter which usually convey their motion to the auditory nerve do so under certain restrictions. Taking, as an example, the vibrations of a string in the air, we find that the perception of *sound* is limited to a certain scale of rapidity in the motion of the string. If it makes less than thirty-two or more than fifteen hundred vibrations in a second of time, the motion it imparts to the air is no longer recognized by the sensorium. There is reason to believe that sounds are recognized by some of the lower animals through a much more extensive scale of vibration.

3. In the quality of sounds we recognize a certain order directly depending upon the number of vibrations in a given time. This quality is the foundation of music, and the terms *tone* or *pitch* refer simply to the relative rapidity of the vibrations producing certain sounds. Between thirty-two and fifteen hundred vibrations per second lie all the notes from the lowest *bass* to the highest *treble*, and their alternation in a certain order constitutes what we call *music*.

The phenomena of light presents many striking analogies to those of sound; but while we have seen that the latter may be regarded as the result of direct connection of vibrations from ponderable matter to the sensorium, we cannot explain the former without calling to our aid a hypothetical form of matter. The vibrations of sound are conveyed with more or less facility by all substances; those of light are arrested by many, and this without relation to their density, as the diamond is as transparent as the lightest gas. That opacity depends upon differences in the mole-

cular condition of matter is shown by the effects of heat upon nitrous acid gas: this is transparent at ordinary temperatures, but becomes opaque when highly heated. Here the only difference would seem to consist in a more rapid molecular vibration in the heated than in the colder gas, and the phenomenon may be referred to the laws of *interference*.

Light, as well as sound, presents phenomena of interference which are clearly and easily explicable by the known laws of undulation or vibratory motion, and by no other theory. But since light is transmitted perfectly through the nearest approach to a vacuum that we can make, and as the idea of *motion* is inseparable from that of *matter*, we are forced to assume the existence of a form of matter only appreciable to our senses when in motion with a certain rapidity.

For the undulations of light, like those of sound, can be accurately measured; and as vibrations of ponderable matter are sonorous to us only within certain limits of frequency, so the vibrations of the hypothetical ether are luminous to us only when repeated not less than four hundred and sixty nor more than seven hundred and thirty millions of millions of times in a second. In the former case the light produced is red, in the latter violet, and between them lie the other colors, each having its definite rate of vibration, and therefore presenting an analogy to the notes of sound. And as it is almost certain that the ears of some animals recognize sounds above and below our scale, so we may reasonably assume that there are eyes sensitive to vibrations below the red or above the violet, and therefore cognizant of *colors* unknown to us.

Being forced by the facts under our observation to refer light, as well as sound, to vibrations of material molecules, I do not see that we are compelled to assume for the optic more than for the auditory nerve any other mode of per-

forming its function than by the simple transmission of vibratory motion to the sensorium.

Passing to the consideration of the sense of Smell, we return to the reactions of ponderable matter, and approach that mode of motion known as *chemical action.* The direct contact of material molecules with the olfactory nerve is the essential condition of the perception of odors. But here we can no longer ascribe the impression to the direct transmission of vibratory motion possessed by the molecule before its contact with the nerve. The motion is initiated by the physical relations between the odorous matter and the nerve matter, and the mutual changes resulting from their contact. But we can scarcely suppose the change thus effected in the extremity of the nerve to convey the same physical change through all the intermediate molecules of the nerve to the sensorium.

Such a theory would be less consonant with all that we know of the laws governing the mutual relations of the several forms of matter, than the supposition that smell, like sight and hearing, is the result of a vibratory motion transmitted to the sensorium. And, by analogy, we should ascribe the variety of odors to differences in frequency and force of the vibrations. But since the motion originates within the organism, we cannot measure its velocity as we can that of light and sound, where the motion is conveyed from objects at measurable distances from us.

These remarks upon the sense of smell apply equally to that of taste, in which the impression is made and transmitted in a similar manner, and may also be extended to the sensations excited in the nerves of common sensibility by the contact of any agent capable of chemical action on them.

But the sense of touch presents some other features worthy of attention. The most common impression derived by this sense from the contact of any body, is that the body

is hard or soft, rough or smooth, wet or dry, and these conditions are recognized by the mode in which they affect the mechanical contact of the body with the sentient papillæ. For instance, the idea of roughness or smoothness is derived from the less or greater number of nerve-points that come in contact with the substance touched. The physical change in the nerve, wrought by gentle contact with any substance of the same temperature with the skin, must consist simply in molecular motion, more or less in degree according to the force of the contact.

When the substance touched is warmer or colder than the skin, it imparts or receives vibratory motion to or from the molecules of the nerve, and the sensation of heat or cold is perceived. If the sensation be very intense, the direction in which the motion is transferred is no longer distinguished, and extreme heat or cold produce similar sensations.

The sensation of *tickling* seems to be caused by light and rapidly-repeated touches, producing a *rhythmical* vibration in the nerve. It is observed that long-continued tickling, or the repetition of slight impressions, as the measured dropping of water upon the surface, are competent to produce general disturbance of the brain. I would suggest, in explanation of this fact, the cumulative effects of slight rhythmical impulses in producing great motion of matter, as exemplified in the breaking of a bridge by the weight of troops "keeping step," when the structure could easily bear them marching "at will."

I offer these observations upon the several senses only as speculations of my own, upon the probability of finding in the laws of molecular motion the common explanation of the manner in which impressions are made and conveyed. I believe that in none of the sensations is any foreign material carried by the nerve to the sensorium, nor is any physical change wrought in the nerve-matter, excepting *motion*, however imparted, conveyed by any nerve.

In this sense I am disposed to regard sensation as a "mode of motion," not identical with any of the other physical forces, but correlated with them all, in its common reference to the laws of motion.

I have not seen an attempt by any writer to examine this correlation, but hope to see the subject treated by abler hands and more fully than I have done in this brief and imperfect exposition of my own views.

PRACTICAL OBSERVATIONS UPON GONORRHŒA

BY JUNIUS L. POWELL, M. D., Henrico County, Va.

FACTS once established cannot be refuted, and cease to engage the attention of those in search of knowledge. That the pathology of venereal diseases is but imperfectly understood, even at the present advanced stage of medicine and surgery, is attested by the volume upon volume that has been devoted to an elucidation of its nature and treatment. These, however, add but little to the fund of practical knowledge, but tend rather to lead the studious inquirer after truth into a labyrinth of conflicting and hypothetical reasoning, from which he extricates himself bewildered and confused.

I do not propose to extend these remarks into a lengthy essay upon the history, pathology and treatment of venereal diseases, but to offer some practical observations upon the treatment of gonorrhœa, which, it is hoped, may awaken a new interest in the subject, and furnish the points of departure for new investigations. Certainly upon the pages of our medical journals gonorrhœa occupies no very conspicuous position, and I am aware of the fact that even with a number of the medical profession a "clap" is re-

garded as of but little consequence. But notwithstanding the opinion that prevails with some as to its insignificance, there are few who have not experienced some embarrassment occasioned by the unsatisfactory results that often attend upon the most approved course of treatment. The youthful practitioner is startled and discouraged upon finding, after an application of such remedial agents as are suggested by an extensive experience in hospital practice, combined with the information gathered from a thorough course of didactic instruction, that he sometimes fails to effect a cure. Frequently the treatment of a case is protracted for an indefinite period of time; and if the practitioner is enabled to propitiate the confidence of his patient until recovery ensues, he himself cannot fail to feel a latent conviction that it may possibly have been due more to the restorative powers of nature herself than to his own skill or the virtues of his drugs; or, in vulgar parlance, that the disease "wore itself out." The greater readiness with which a gonorrhœa yields to remedies when situated within the wards of a hospital, has been well observed by those who are familiar with both hospital and private practice, and clearly establishes the necessity for the adoption of other conditions conducive to a cure, besides the one of mere medication. In some of these cases, even where the practitioner can enforce a rigid abstinence from bodily exercise and appropriate attention to diet, his efforts to bring relief are met with the most obstinate resistance. From what source, then, are we to obtain a solution to these varying features of the disease under what are apparently analagous conditions? Experience would seem to teach that there are variations in the type of the disease, from benign to very virulent, and that these variations are modified in their characteristics by the constitution and habits of the patient. These facts admitted, together with the absolute impossibility of obtaining the naked-eye appearances of the urethra

or any part of the genito-urinary apparatus, show that diseases affecting these organs have not received the attention they deserve, and point to them as a field for interesting and valuable research. The train of evils that frequently follow upon the use of too violent remedies in the treatment of this disease, demand of the profession an earnest effort to avoid such consequences. I have before me, in the Richmond "Medical Journal," for November, 1867, the report of some cases treated for stricture of the urethra, which were brought on by the indiscriminate use of caustics in previous attacks of gonorrhœa. The manner in which these agents act to produce such results does not seem difficult to account for. The very thin and delicate mucous membrane which lines the canal of the urethra may be destroyed, and a cicatrix formed upon the subjacent tissue. This cicatrix being called upon for the discharge of an office that nature never intended it should perform, under the irritating influence of the urine, is made to constrict the canal, or is hyperthrophied into a mass which obstructs its easy flow. The constant pressure of the urine behind this obstruction, aided by the bands of lymph that are thrown out upon the surface of the canal, which form into valves, as it were, and point it in a new direction, is shortly followed by false passages. These are some, but not all the evil consequences that frequently ensue upon the unskillful treatment of gonorrhœa. The question then suggests itself, "Have we progressed very far in a knowledge of the pathology and treatment of this disease?" To select such remedies as will suit particular cases, as they may be modified by the peculiar sensibilities of the patient, whether obtunded by age and frequent attacks, or exaggerated by extreme youth, his habits and occupation, and the different types of the disease, so as to avoid those unhappy results that so often follow, requires the nicest discrimination on the part of the surgeon. Whether the frequent failures to

do this are due to the inadequacy of a long-established practice to obstruct the progress of the disease, without being accompanied by these sequelæ, or to ignorance on the part of the practitioner, or to his still more culpable neglect in not making a thorough investigation into the exact nature of each particular case, it would be difficult to say. At any rate, a more satisfactory and approved method of treatment of gonorrhœa is a surgical desideratum.

Tyler Smith, in his admirable work on leucorrhœa, has, by the agency of the microscope, thrown a vast and invaluable amount of light upon the pathology and treatment of that disease, which otherwise would still remain buried in the regions of the unknown. May we not hope that there will be a more diligent application of this instrument to the study of the morbid secretions of the urethra and bladder?

The following are the memoranda of a case of gonorrhœa which recently came under my observation:

J. M. W., age 35, a blacksmith of fine physical development and constantly engaged in active work, presented himself to me on 21st April last, with an attack of gonorrhœa, for treatment. The disease manifested itself about 48 hours before. He says he had connection with a woman five days previous to that time. The discharge, which was abundant, was preceded by the usual itching and tingling sensation along the track of the urethra. He has had frequent attacks before, and in one or two instances was subjected to very harsh treatment for its cure. From the last attacks he was not entirely relieved, but was left with a *gleet*, which made its appearance at intervals of greater or less duration, and was generally brought on by an inordinate amount of physical exercise, particularly that required in shoeing horses. I directed him to go upon the following treatment, viz: Three capsules of the balsam copaiba and one of the oil of cubebs, three times daily, with an injection for the penis composed of zinci sulphas grs. vi. to water ℥vi.; of this, two syringefuls were to be used three times daily.

Previous to injection I directed him to pass off his urine and then to introduce a syringeful of clean cold water; this done, to inject and retain for a few minutes. I also directed an abstinence from all stimulating or gross food, and that he should take no supper; also, that he should keep a wet cloth over the penis.

April 23d. Discharge still continues—direct 4 capsules of copaiba and two of cubebs three times daily.

Monday, April 25th. Return to three capsules of copaiba and one of cubebs, as the larger doses seemed to oppress him. He complains of weakness in the back, and I directed him to apply a Burgundy pitch plaster, 5 x 4 inches, over the juncture of the sacrum with the lumbar vertebra.

April 26th. No signs of the discharge. The zinc wash being out, as an experiment, I directed the following:

℞ Argenti Nitras - - - - - grs. ii
Aq. - - - - - - ℥ viii.

S. Inject two syringefuls three times a day.

Which he used only twice, as it occasioned him considerable pain, and was followed by chordee at night. The next morning he had some difficulty in passing his urine, and said the canal felt as if it had been glued up. Some slight discharge visible.

Wednesday, April 27th. Returned to the zinc wash, and on Saturday night there was no discharge.

Monday, May 2d. Patient resumed his work of shoeing, and the discharge shortly afterwards returned, but subsided as night came on.

May 3d.

℞. Balsam Copaiba - - - - ℥ iij.
Ext. Cubebs Fld
Spts. Aetheris Nitrici } - - aa. ℥ ss
Spts. Lavender Co.

M. S. Teaspoonful three times a day.

℞. Zinci Sulphas - - - - grs. xii.
Pb. Acet. - - - - - grs. xv.
Aq. Camphor - - - - ℥ v.
Tinct. Arnica - - - - ℥ i.
M. and strain through a cloth.
S. Inject two syringefuls three times a day.

May 6th. No return of discharge since evening of May 2d.

May 10th. No discharge this morning or pain in passing his urine. A slight tingling sensation felt about the orifice of the urethra.

Sunday, May 15th. Patient entirely relieved.

The object of the above record will be explained by the record itself, but there are some features to which I think it worth while to call attention. For a person, unaccustomed to such exercise as brings into violent action all the muscles, organs, joints and vessels of the lower part of the back and pelvis, to engage in an employment that would necessitate such a result, while laboring under an attack of gonorrhœa, would induce his physician to expect an aggravation of his disease, or its return if it had been but imperfectly cured. I have known, as has happened within the experience of many others, the disease to return from the effect of a ride on horseback or a long walk, and I have also known a gonorrhœa to be cured with no other injection than that of cold water. Others I have treated with all the skill I possessed and under favorable conditions, and yet they would run into a *gleet*. A failure to find the usual results in the above case I consider due to the long habituation of the patient to his employment; and the effect of the pitch plaster I consider a plea in behalf of counter-irritation.

ARE ALL THE RACES OF MEN DESCENDED FROM A SINGLE PAIR?

BY HARVEY L. BYRD, M. D.,
Professor of Obstetrics in Washington University of Baltimore.

AN affirmative answer to the above inquiry would, perhaps, afford consolation, and might prove satisfactory even, to certain fanatical individuals of the white race, who believe, or at least profess to believe, that the black skin, woolly hair, and thick lips of the African place him a degree or two higher in the scale of the *genus homo* than that occupied by themselves; and, probably, certain other well-meaning but timid persons might be inclined to suspect that we do not venerate religious teachings, or the opening paragraph of the *Declaration of Independence*, as they do, should we venture to answer the proposition in the negative. "THE BALTIMORE MEDICAL JOURNAL" is an appropriate medium through which to present to the profession such facts and intelligence of a scientific character as relate to the physical peculiarities of the human race, and the times require that these developments should be recorded and permitted to flow *pari passu* with new discoveries in pathology and therapeutics. With the political aspect of the question, and the absurd ideas and preposterous conclusions of fanatics, we can here have nothing to do; and, however much we may deplore the wickedness, or commiserate the blindness of those who attempt the subversion of the immutable laws of Jehovah, in order to the carrying into practical operation their ideas and conclusions, the pages of a medical journal cannot be prostituted to their refutation.

We have abundant reason for believing that the vast "chain of being which from God began" was formed upon a plan so unerring in its character that it cannot now be changed in the smallest essential element or particular. The design and harmony of action which we so clearly and unmistakably

see exhibited in all departments of Nature's works that have been explored and comprehended by man, assures us we are not mistaken in concluding that order, symetry, and harmony had their birth in the early dawn of creation, ere the "morning stars sang together" at beholding the newly formed world. In the examination and study of this great question, we should, for obvious reasons, give so much attention to the formation of the earth as to discover its perfect adaptation to the support of vegetation before an herb or tree was planted upon its prolific and generous bosom. At proper and regular periods, in fulfilment of the great plan of the Architect of universal nature, animal life sprang into existence, each *variety* in its own peculiar form and proper time, in obedience to laws which the Creator determined should govern them and their successors, so long as their existence might be continued on the earth. Reasoning from facts as well as from analogy, we are forced to the conclusion that *all* living beings—certainly *all distinct* species—have continued to increase and multiply from the time of their creation, in strict conformity and obedience to the laws which were ordained for their government and development. The fact that Nature can never be otherwise than true to herself, is apparent on every page of her vast and glorious volume; and the assertion is constantly verified by physicists and astronomers, in their investigations, that "Science is but Nature understood." Naturalists, of whom comparative anatomists form no unimportant portion, are rapidly advancing in the knowledge of minutiæ of their departments; and if we are permitted to judge from such facts as have been developed within a few years, we are led to the conclusion that the next decade will find the latter occupying as safe and satisfactory ground as that which qualitative analysis secures to the chemist.

Success in any of the natural or physical sciences is attainable only through a knowledge of the laws relating

thereto, however much we may be captivated by beautiful and fanciful theories. In natural history many and important facts have been discovered, analysed and systematised. Thus we have a satisfactory standard for the vertebrata. Physiology has shown that a whole type of vertebrata is built upon a distinct plan. Prof. Owen has demonstrated this and kindred facts in England; the same facts have been rendered familiar to the naturalists of France by the illustrious Geffroy St. Hilàire, and Professor Agassiz is adding greatly to this knowledge on this continent. These and other discoveries prove conclusively that there is no foundation whatever for the theory that "animals have been successively changed so as to form the great variety which we see." The vertebrata, as above stated, are built upon an entirely different and distinct plan from any other class or division of animals, and therefore have but little in common with them. The plan of the articulates is also well understood, and they differ as widely from the vertebrates as either does from the mollusks, or the latter from the radiates. These facts incontestibly show the utter *impossibility* of a transmutation of animals. The foregoing discoveries have been adduced to prove that a *law once inaugurated ever after* continues as unchangably its influences in the *animate* as in the *inanimate* works of creation. What is true of the laws governing the forms and habits of animals must be equally true of those regulating their modes of propagation. A law, therefore, which is now known to *prohibit* the breeding *inter se* of a limited number of animals of the same type for any considerable length of time, must have existed commensurate with its creation! The fact is as well known to the uneducated husbandman as to the scientific physiologist that many of our domestic animals, such as horses, cows, sheep and hogs, *degenerate* and ultimately *die out* by long breeding in and in, and that fresh blood must be introduced—even from a neighboring pas-

ture—in order to the perpetuation of the original status of the stock. I am informed that our domestic poultry affords additional proof of the same fact, and that it is necessary to change the breeds occasionally in order to increase or even preserve the original value of "the denizens" of the barn-yard. The foregoing facts, doubtless, apply with equal force to *all* animals. Examples, fortunately, are not seen at the present day of the interbreeding of brothers and sisters, or parents and children, in the *genus homo*, as occurs in the lower domestic animals; but we witness, in the imbecile and degenerate offspring of near relatives who have intermarried for several generations, unmistakable evidence of violated natural law.

Whole families have become extinct from thus interbreeding. Such being the known results of violated law in the present age, it is surely not unreasonable to infer that the same would have proven true of similar interbreedings at any previous period of time.

We are hence led to the conclusion that it is *physiologically certain* that neither man nor the lower animals could have been perpetuated from a *few*, much less from a *single* pair. Nature has unmistakably decreed *several* species or types of the same genus among the lower orders of animals, and careful examination and comparison forces the conclusion on our mind that at least the *three* well-defined and prominently distinguishable types of men, viz: the Caucasian, Mongolian, and Negro races, have continued to present, from the periods of their creation, the same well-defined differences and characteristics which so eminently distinguish them now. Their anatomical, physiological, mental and moral characteristics are too well known to intelligent physicians to require a notice of them here. The idea of time and climate having wrought out these distinctions in color, *et cetera*, as was asserted by a few ethnologists of eminence some years ago, may be still

entertained by prejudiced persons; but it is apprehended that no naturalist of respectable attainments in the anatomy, even of the types above mentioned, would now venture to assert that they were *all* cast *originally* in the same form and color, or that these three races of men are from common stock, much less the descendants of a *single pair*. All experience teaches that nature is and must continue true to her own great laws. Our professional success depends entirely upon the use we make of her laws in the treatment of disease, as certainly, though we may not always appreciate them so clearly, as the laws of mathematics or mechanics in the solution of problems or the construction of edifices and machinery.

The timidity with which this great question is approached by some good men is incomprehensible on any other ground than *fear*, lest scientific investigations might prove *too much*, and thereby tend to unsteady their construction or understanding of the Mosaic account of the origin of Man. Such apprehensions are natural enough, until the important truth is learned that the Bible was never intended as a teacher of science. A limited acquaintance only with anthropology exposes the diversity of types, and convinces us that the races sprang from different sources, while a fuller comprehension of the science certainly establishes man as the highest, as he is the most perfect, work of Nature. Created by an intelligence so vastly superior to his own, that each step in the study of his physical and psychological composition reveals in unmistakable language that he was mainly formed for immortality. Such being the case, the Bible—the revealed will of God—and science must, in the very nature of things, completely harmonize in all their precepts and teachings, when the former speaks at all.

The demands of humanity and of the age in which we live require at the hands of our profession a clear and full expression of the revelations of science on this vitally im-

portant subject. To us, intelligent religious minds appeal for light amid the dogmas of "fallible" men.

On a subsequent occasion we purpose inviting the attention of your readers to some practical facts as to the liability of the Caucasian and African races to particular diseases, and the manner and extent to which they are respectively impressed by certain morbific and therapeutic agents, as interesting professional *proof of their different sources of origin.*

REPORT OF FIVE CASES OF TYPHUS FEVER TREATED WITH BELLADONNA.

BY T. S. LATIMER, M. D.

A FEW months ago my attention was arrested by an article in the "London Medical Times and Gazette" on the use of belladonna in typhus fever. So signal was the benefit ascribed to it by the writer, that I determined to try it at the first opportunity, for which I had not long to wait.

On the 29th of April, I was called to see a negro girl, about 25 years old, living in an alley immediately in the rear of the jail, where, at that time, there were quite a number of cases of typhus. Though I could trace no direct communication with any one who had had the disease, the proximity of the jail and the filthiness of the neighborhood sufficiently accounted for its origin. I have had considerable familiarity with this disease in hospital practice, and had no difficulty in diagnosing the case before me. I shall not attempt to describe the symptoms at length; they were such as ordinarily characterize the disease, presenting no especial peculiarity. A few days of languor and lassitude, with dull headache, associated with constipation, preceded a slight

chill, with subsequent fever, increase of headache, intellectual dullness, with a restless sense of danger giving to the face that peculiarly anxious expression quite characteristic of the disease, which gradually gave place to an expression of weary indifference, were the prominent symptoms in each of these cases. This girl had been confined to her bed two days when I saw her. She was in a filthy condition, as was everything else in the room. I ordered all her clothing to be changed, her whole body to be well washed, a mattress to be placed on the floor, on which she was put, and all other articles of bedding and wearing apparel to be removed from the room; that the whole house should be thrown open as freely as the weather would permit, and that every person living in the house should take a morning and evening bath. I then directed ¼ gr. of the extract of belladonna every four hours, the free use of beef tea, and that the whole surface of the body should be sponged with tepid water twice a day. This treatment was continued without modification of any kind until the 5th day of May, when I directed, in addition, one half-ounce of brandy every four hours. The patient did not become delirious until the seventh day, and the delirium began to subside about the tenth day; at no time was it very great. It was possible at all times to fix her attention and obtain intelligent answers to plain questions. By the twelfth day I believed her out of danger, and declared her convalescent. On the tenth day of her illness, the eighth of its administration, the belladonna was directed to be given but twice a day, and on the twelfth day it was stopped altogether, as was also the alcoholic stimulant, exeept that the yolk of an egg was occasionally given, beaten up with a tablespoonful of brandy, which proved a palatable, nutritious, and readily-digested article of diet. A rapid convalescence ensued, without the occurrence of retarding clrcumstances.

On the 12th of May a little daughter of the first patient, about six years of age, became affected in the same manner, and was put on the same treatment, the dose of belladonna being of course much diminished ($\frac{1}{10}$ gr. every four hours.) The strength began to fail a little earlier than in the former case, and it was necessary to use the alcoholic stimulant more freely. In no other respect did this case differ markedly from the first. Convalescence began about the same period, and progressed favorably to recovery.

On the 18th of May a negro woman, who had nursed the first case, was attacked, and the disease pursued the same course with little or no variation, except that there was a little more prostration, and convalescence did not begin quite so soon, nor progress so rapidly as in the other cases, owing, I have no doubt, to the fact that she was a delicate phthisical woman. The treatment was the same, except that in addition to the stimulant, which was used in the same quantity and with the same frequency, the yolk of an egg beaten up with brandy was taken twice a day. She seemed to enjoy the egg, and no unpleasant effect was observed from it.

On the same day (May 18th) I was called to see a white woman, aged 38, who had had a slight chill on the previous day, was now suffering with violent headache and pain in the back, and indeed with very much the same train of symptoms as the cases just related; but I did not suspect the true nature of the disease, owing to the fact that she had had a large abscess in the submaxillary region, which had opened into the mouth a few days before. She having accidentally swallowed a part of the pus, was intensely nauseated, and vomited freely. I was therefore disposed to refer the condition of this patient to pyemia, thinking that a portion of the pus had been absorbed from the stomach, or perhaps from the seat of the abscess. Nor did I suspect the true nature of the disease until the seventh day, when her mother called my attention to an abundant eruption

upon her body, which I at once recognized as the characteristic eruption of typhus. Up to this time I had been treating her with quinine and iron with alcoholic stimulants, to which I now made the addition of the extract of belladonna, given with the same frequency and in the same quantity as in the other cases. The egg and brandy, and beef tea were freely given. This patient was confined to her bed about three weeks, and her convalescence has never been perfect. She is a phthisical subject, and that disease has made very rapid progress since the inception of typhus, and I think she has but a few months to live.

On the 2d of June a negro woman, who had been living in the same house with the first three patients during their entire illness, but had subsequently removed to another neighborhood, became affected with the same disease, which pursued a course differing so little from those already related that no especial description is necessary. The belladonna was again administered, and the brandy for three or four days, during the most critical period of the disease, was given in tablespoonful doses, four times a day. She is now (June 27th) quite well, though of course she has not yet recovered her ordinary strength, and still has some stiffness and soreness about the joints.

In none of these cases could I observe any definite or special effect from the belladonna; but I am strongly inclined to believe it exerted a favorable influence on the general course of the disease, and somewhat lessened the severity and duration of the delirium. In neither case was any other medicine whatever used, except in that mistaken for pyemia, in which the quinine and iron were continued throughout the disease. The quantity of stimulus used was small, and that but for a short time, except where the phthisical complication existed. I am, however, disposed to refer considerable benefit to the frequent sponging, which certainly added greatly to the comfort of the patients and, I believe, to their recovery.

SELECTED ARTICLES.

VESICO-VAGINAL FISTULES:

COMPARATIVE ANALYSIS OF DIFFERENT SURGICAL METHODS—RESULTS, AMERICAN AND EUROPEAN.

BY NATHAN BOZEMAN, M. D., OF NEW YORK.

To ILLUSTRATE by clinical facts the legitimate surgery of the female genito-urinary organs, and to criticise operations, that hide without removing the evils against which they are directed, are the aims of this communication. It is a reply to Dr. Gustave Simon, Professor of Surgery in the University of Heidelberg,* in deference to whose claim of priority in the operation of kolpokleisis (transverse obliteration of the vagina), we begin by withdrawing our own, made in 1867. It happens, however, that historical documents, overlooked by us both, attribute to French surgeons the initiative in question.

In 1845, A. Bérard,† after mentioning Vidal's occlusion of the vulva in 1833, says with regard to incurable vesico-vaginal fistules:

"I modified this method by incising the mucous membrane at the entry of the vagina, and dissecting up a cuff-like fold about two centimetres long, round the free border of which I passed a thread (as in Dieffenbach's purse string suture). The ends of this thread I drew with a catheter through the fistule into the bladder and out of the urethra, puckering the fold of mucous membrane at its bleeding surface; then I faced the raw surfaces of the vagina below with three points of quilled suture The urine still trickled through two minute fistules, at the patient's death some weeks later, from pleuritis and peritonitis."

Kolpokleisis here was not less completely effected than in the first operations recorded by Prof. Simon.

Bérard also cites Velpeau's treatment of a vesico-vaginal fistule, complicated with partial atresia vaginæ below it, as in Margaretha Hubert's case, the first in which Professor Simon attempted kolpokleisis in 1855. Velpeau had failed to complete this closure with

*See his letter to the author in the Deutsche Klinik, Nos. 45 and 46, 1868, translated into the American Journal of Obstetrics, vol. ii., No. 2, 1869; and also translated into English, and circulated in pamphlet form, by Prof. Simon.

†Dict. de Méd., vol. xxx. p. 497.

the actual cautery and suture, and the urine still dribbled away, as after Prof. S.' two " doppelnaht" operations and repeated cauterizations. M. Lenoir had attempted to obliterate a vagina, otherwise normal, below the seat of a fistule. He had cauterized, with the hot iron, a complete circle of its walls, had applied the tincture of cantharides for their farther refreshment, and introducing a curved wooden tube into the previously dilated urethra, and a larger one into the rectum, had, by drawing their outer ends together, forced the two raw surfaces of the vagina into contact, and so held them, with a view to their adhesion, but this manœuvre failed of its object.

A vesico-vaginal fistule having resulted from abuse of pessary in one of Dupuytren's observations, spontaneous atresia of the vagina had ensued below the fistule, and the catamenia were voided through the bladder. Carteaux had published another case like this, consecutive on a tedious labour.* Such were the facts, in view of which Bérard practised kolpokleisis at la Pitié, as above shown, to remedy a large loss of substance in the vesico-vaginal septum with hernia of the bladder into the vagina. He refreshed the surfaces with bistoury and scissors, but used the purse-string and quilled sutures. Up to the 21st day the operations seemed to have been an almost complete success, and the patient's death was due to other causes.

"The reason," says our illustrious brother of Heidelburg, "why I have proved the validity of my claims of priority at such lengths, is simply this, that in my opinion kolpokleisis is the most important plastic operation which in the last decennia has originated from one single man. The operation of vesico-vaginal fistula by uniting the borders of the defect is indeed, in its present perfection and precision, a much more important acquisition than kolpokleisis and probably the greatest achievement of our century in plastic surgery; but it has not been carried to that perfection by a single man, but, on the contrary, operators of all nations have contributed their share to it. The 'uranoplastic' of our ingenious countryman—Von Langenbeck—could alone be placed by the side of kolpokleisis, as far as the safety of the performance and its immediate success are concerned. It would rank higher still on account of its more frequent occurrence, if its benefit for the voice in increasing its purity could be secured in all or in the majority of cases. But as in many cases this result is not obtained at all and in others only incompletely, kolpokleisis must be considered the more important operation, as in all cases it fully answers its purpose. This operation which I invented at the time when the obliteration of the vulva, proposed by Vidal, proved inefficacious in reëstablishing continence of urine, has already been performed more than fifty times with complete success. Through it many patients with incurable defects of the bladder have been freed of the most intolerable suffering, viz: the incontinence of urine. I have myself succeeded in eighteen cases in effecting perfect obliteration, and every German surgeon who practises the art of curing vesico-vaginal fistules, has recorded one or more successful cases of that kind."

* "Journ. de Lucas Championnière."

In the autumn of 1858, a young negress, Jane F., aged 20, entered our private infirmary at Montgomery, Ala., for the treatment of two fistules, one urethro-vesico-utero-vaginal, the other recto-vaginal, the results of extensive sloughing the year before, and due to the usual cause, the pressure of the child's head in prolonged labor; for this distressing accident levies its tribute of suffering at the portals of maternity, and the primipara is, for obvious reasons, as in the case before us, its most frequent victim. On her first admission, she was operated upon by our former partner, Dr. J. B. Gaston, but without success. She came under our personal care January 1st, 1859.

Examination revealed the loss of the whole vesico-vaginal septum, with half the urethral portion of the vagina, leaving the pubic arch bare, ½ or ¾ inch on either side of the symphysis, while above, the cervix uteri had lost its infra-vaginal portion. The immobility of its borders, as well as of the womb itself, forbade any compensation for the loss of substance, by drawing down the womb to close the opening. The recto-vaginal fistule, two fingers in size, was oval, with its long axis transverse, and lay 2½ inches from the anus. At its lower border a hard unyielding band spread across the posterior vaginal wall. The lower border of this fistule became gradually mobile by dint of incisions and of dilatation, until it allowed coaptation of its refreshed edges beneath the button-suture, which completely protected them from the urine as it poured into the vagina through the large hole in the base of the bladder. Removal of the suture apparatus on the eighth day revealed complete closure of this fistule by union of its edges. To close the other chasm was impossible. By what operation might the distressful flow of urine be prevented? Already in a case analogous to this we had closed up the vulva, like Vidal, but found little advantage from that. The point in question was to convert the remains of the bladder and vagina into one common cavity. This object we effected by paring the anterior vaginal wall up to the corresponding border of the fistule and round to an equal extent upon the lateral and posterior walls. These raw surfaces were then buttoned together in a transverse line, and the vagina closed up to the fistule, thus leaving no pouch for urine below and avoiding that most serious objection to Vidal's operation of closing the vulva by an antero-posterior line of union.

Drs. Gaston, Norton, and other physicians, witnessed our transverse occlusion of the vagina in this case, with eight wire sutures, and a button 1¾ inches long, which, when removed on the ninth day, left the atresia complete. This was March 15, 1859, and from this time the patient retained and passed her water at will; it never dribbled away unless she neglected to void it for many hours. She lay dry all night without having to get up, and could walk about for three or four hours at a time without wetting herself.

These advantages have been in great measure maintained during eleven years. We had frequent good reports of her during the first four; at the ninth she was in health and doing all the housework of a family. Dr. R. P. Means, of Hickory Grove, Alabama, has just seen her and replies to our questions as follows:

"Jane Finley is living and her general health is very good She can retain her urine while walking about sometimes, but it occasionally dribbles. If when lying down she immediately answers the call to urinate, she can retain the urine long enough to get up and go out of doors. She does not complain of any pain, but says that she used to retain her urine much better soon after the operation on her than she can now."

It seems then that Time is growing envious of our success in the first only case of transverse obliteration of the vagina on our record, a case remarkable too as the first now living, in which complete occlusion was effected in the urethral portion of a vagina of normal dimensions, and after utter destruction of the vesico-vaginal septum. This result was obtained by a single operation with our button-suture. Its record may be found in the January number of the "New Orleans Medical and Surgical Journal" for 1860. Full details of it were in the printer's hands when that Journal was suspended at the breaking out of the war. We at that time regarded it as unique and our method as original. Two cases mentioned by Dr. Sims in 1858* present, however, some analogous points. In the first, a part of the bas fond of the bladder had been destroyed along with the infra-vaginal cervix, and Dr. S. had united the vaginal walls about an inch above the urethra. This case would tally well with Prof. Simon's second topographical division of kolpokleidic operations.

In Dr. S.' second case, only a small part of the neck of the bladder remained attached to the urethra. The mouth of the vagina was closed by uniting its posterior wall to the urethra as they lay in contact, leaving a pouch $\frac{3}{4}$ of an inch deep below the anterior border of the fistule, in which urine might stagnate and stone accrete, the same evils as result from Vidal's method.

In either of these cases the only complication arose from the loss of the infra-vaginal cervix. In one, the whole trigone remained intact; in the other, a part of it. The integrity of the urethra invited the soldering of the anterior borders of these fistules to the cervical stump by the button-suture, well known here at the time when Dr. Sims operated on them. With his clamp-suture, on the

* Silver Sutures in Surgery, page 16.

other hand, it would have been impossible to hold the two borders together long enough for union to be effected. This upper clamp would have rested, in the first case, across the stump of the cervix, on a plane far above the lower clamp, which would have been imbedded in the soft tissue of the vagina, above the root of the urethra, a position compromising the success of the operation. In the second case, his upper clamp would have occupied the same position across the stump of the cervix, but the lower one would have been thrown directly across the root of the urethra; the womb could not then have been drawn and kept down long enough for closure of the fistule by union with its anterior border. The constant drag of the depressed womb upon the front clamp would have strangulated the tissues, and their slough would have left a mutilated urethra with a fistule much enlarged. If confined to the use of the clamp-suture, then Dr. Sims' expedient became inevitable.

Prof. Simon's case, Maria B.,* presented a vesico-vaginal fistule as big as a cherry, high up in a normal vagina. Upon this Prof. S. operated often in vain, sometimes trying to close the fistule with his doppelnaht; at others, to obliterate the vaginal canal. At last he succeeded in closing the fistule, a result surely preferable to kolpokleisis for the patient, since the question for her was, vagina or no vagina? On the other hand, the surgeon's reputation could not suffer from success, however tardy, in his first and legitimate object. The first kolpokleisis completed in Germany appears to have been made by Prof. Wernher, of Giessen, who has recently imparted to us its instructive though sinister details, and the discovery of a stone in the vaginal pouch after the death of the patient. This was the eighth kolpokleisis in Germany previous to our own operation in 1859. One of the eight was operated by Professor Roser, of Marberg; the six remaining cases were Professor Simon's. Let us now endeavor to fix the rational limit of application for this method of transverse obliteration, to which Professor S. attaches so much value. Let him speak:

"Since the invention of kolpokleisis, however, I have not remained satisfied with that mode of operation, to which you still adhere. On the contrary, I have constantly labored to perfect the method of operating; to multiply its chances of success, in the different parts of the vagina, and to render its indications more precise.

* Ueber die Operation Blasenscheiden fistelndurch die blutige naht, page 5, 1862.

Whereas I had, in my first cases, operated only in the lower parts of the vagina, and had repeatedly met with small remaining fistules which could not be brought to heal, such occurrences are now extremely rare, and I close, as the case may be, in any height of the vagina, and always immediately below the defect. Nay, in one case, where the fistule was high up in the fornix, I needed only one-half of the latter for the obliteration, thus preserving the vagina in its whole length. (See my 'Beiträge zur Platischen Chirurgie.' Prag. 1868, fol. 216.) Moreover, whereas I used to consider kolpokleisis indicated only where large defects existed, I have now limited this indication a good deal, having cured at later periods very considerable defects by uniting the borders of the wound by sutures, like these(⌒, T, ⅄, ⅄,), by resorting to incisions along the sides and parallel with the sutures, and even by transplanting a flap from the vesico-vaginal wall. The size of a defect has, for the reasons enumerated, during the last five or six years not been in my eyes an indication for kolpokleisis. On the other hand, I have found among the large number of difficult and complicated cases which have come under my treatment, several in which it was either impossible or too dangerous to unite the borders, so that here I resorted to kolpokleisis."

Here are his rules laid down for guidance in kolpokleidic operations, distinguished topographically* in three classes:

1. Obliteration of the vagina in its urethral portion.
2. Obliteration of the vagina within the limits of the base of the bladder from the root of the urethra to the cervix uteri.
3. Obliteration of the vagina at the fornix, transversely, if the fistule be very large; oblique, if small and high up on either side the fornix.

His indications for kolpokleisis† are:

1. Great loss of substance, making it impossible to bring the sides of the fistule together.
2. Inaccessibility of fistules, from their high position, from the inversion of their edges, &c.
3. Loss of infra-vaginal cervix and danger to peritoneum.
4. Hemorrhage into bladder, if severe, after operations.
5. Confinement by adhesions of the stump of the cervix uteri, inside the bladder, so that the catamenia escape through the urethra.
6. Atresia vaginæ above fistules, involving their posterior border, so that its orifice communicates between the vagina and bladder.
7. Atresia of urethra with one fistule above and another below.
8. Uretero-vaginal and uretero-uterine fistules.

* "Beiträge zur Plastischen Chirurgie." Prag. fol. 216, 1868.
† Op. cit. p. 229.

Prof. S. remarks the greater difficulty of closing up the urethral portion of the vagina.

Very curious is his treatment of uretero-vaginal fistules (*harnleiter-scheidenfisteln*). He makes a new fistule near the mouth of the womb, then obliterates the vagina just below the false passage between it and the ureter. This converts the upper part of the vagina into a pouch for the menstrual fluid, and for the urine of one kidney with a passage to the bladder through the small artificial fistule. No less novel is his management of uretero uterine fistules (*harnleitermutterfisteln*), which he claims to have met with. Here he closes the vagina higher up and just under this newly-formed fistule, so that the urine of the ureter implicated passes from the cavity of the womb through the cervical canal, and reaches the point of closure, whence the artificial fistule conducts it into the bladder. The menstrual discharge takes this same course. These operations both prevent impregnation and partially mutilate the vagina.

But most novel and startling of all is Prof. Simon's statement that the contact of urine is not prejudicial to the uterus nor to its menstrual function, that the confinement of urine in the vagina is innocuous, and the condition of patients with closed vaginas is satisfactory!

Calculi, says he, are not apt to form if kolpokleisis be complete. He attributes to an overlooked suture-knot, which served as nucleus, the only case of stone that he has met with.

These peculiar physiological views prepare us to appreciate the "cure" of eighteen patients, 17 per cent. of all his cases, by the closure of their . . . vaginas.

More than thirty other interdicts of this long suffering organ have been placed, as he tells us by other German surgeons, among them, Roser, Wernher, Wilms, Ulrich, Bardeleben, Wagner, Esmarch, Spiegelberg, and Hegar.

The details of these thirty cases not having been cited, we reserve our judgment concerning the expediency of the operations, and confine our remarks to Prof. Simon's.

Our attention having been turned to the treatment of vesico-vaginal fistules in 1853, the same year, it seems, that Prof. S. took up this subject, and having before the interruption of our female practice by the war and its consequences, in 1860, put on record

forty-one cases, our opinions have not been hastily formed, and we feel it our duty to protest against the latitude of Prof. S.'s indications for condemning the passage of the vagina.

What is vesico-vaginal fistule? A solution of continuity, maintained in the vesico-vaginal septum by the passage of urine, the contact of which is a chief obstacle to the process of healing.

In what does the cure of a fistule consist? In the union of its edges without serious lesion to the functions of the bladder, vagina, or uterus. No result inferior to this is a true cure, however complete the continence of urine. This physiological standard should never be lost sight of in our choice of remedial methods. What is kolpokleisis? The conversion of the vagina into a urinal, with prevention of the sexual act and generative function, restricting the uterus to the part of an excreting organ. Per contra, it claims to obviate the incontinence of urine.

Of Prof. Simon's eight indications for kolpokleisis, we recognize as valid only the first one, viz., a loss of substance such as to prevent the coaptation and consequent union of the fistulous borders.

No loss of substance can prevent a cure so long as the womb can be drawn down to fill the aperture. In cases where this seemed impossible at first, it has gradually yielded to our daily tractions with polypus forceps on the cervix and stretching of the surrounding tissues, until the two sides of the fistule would meet. This once affected, we feel confident of cure by our button-suture. Since its invention we have never had recourse to incisions, in order to relax tissues and take the strain off our sutures, as Jobert was so much in the habit of doing, and as Prof. Simon, after condemning it, has been fain to practice likewise. Even when a force of several pounds had been needed to bring the sides together, our button suture has always sufficed to maintain them in apposition until their complete union. Incisions we apply only to the preliminary treatment of cicatricial bands, or to points of atresia, which, after opening, we dilate with tents, not attempting to close the fistule until we have removed, as far as possible, such obstacles.

All Prof. Simon's indications precited, except the first, have been met and overcome in our practice, without having recourse to kolpokleisis. At "uretero-uterine" fistules, indeed, we may place a point of interrogation, for their diagnosis does not appear to us

well founded in the cases stated. Bérard describes such a case in full detail. He injected colored fluids into the bladder, he introduced a probe into the cervical canal, and another through the urethra, so that it should strike the first, if a fistulous communication existed. He measured separately the fluid escaping from the vagina, and what escaped from the urethra; he smelt what escaped from the os uteri. Now such means may aid in ascertaining the existence of a vesico-uterine fistule, but they cannot determine whether the communication between the uterine cavity and the urinary apparatus occurs at a point beyond that of the normal contiguity of these organs. A fistule $x \times y$, of track unknown, may exist; the precited means of diagnosis may fail to prove it vesico-uterine; they cannot, however, prove it uretero-uterine, and we have seen vesico-uterine fistules in the diagnosis of which they failed, because of the extreme smallness of the fistulous track and its valvular condition. We have been unable to pass a colored fluid through it from the bladder in quantity sufficient to be seen in the cervical canal; nor could we pass a probe, however delicate, in the same direction, yet the two streams of urine, one from the vagina, the other from the bladder, always flowed separately. Was this a proof that the urine of the vaginal stream came from the cavity of the womb? *Post hoc, ergo, propter hoc*, will not answer here, as the linen test has frequently attested in our hands. By this test we have detected the precise situation of a passage between the bladder and the cervical canal, even when the fistule was too small to be seen by the strongest reflected light. In one case cured by us January, 1869, the point of communication with the cervical canal was near the internal os and the fistulous tract above, bounded only by the utero-vesical fold of peritoneum; this membrane was punctured while operating, but no serious consequences ensued. Here, even when the cervical canal was fully dilated, a strong reflected light failed to reveal the fistulous orifice, although while the patient lay upon her back, the urine flowed freely from the os externum. Now on mopping dry the cervical canal, and laying a bit of old linen on its anterior wall, its saturation showed at once the orifice at that point, by closing which we cured the patient.* No organ was injured, no function compromised by our operation.

* For the *linen test* and treatment of vesico-uterine fistules, see our more extended notice in the Transactions of the New York State Medical Society, p. 154, 1869.

A patient* has recently come to us with a rent of the urethra half its length back from the meatus, and a small vesico-vaginal fistule, the remains of a large one thus far closed by Dr. Emmet, of the New York Woman's Hospital. The anterior lip of the cervix had been soldered to the root of the urethra by three operations with Sims' interrupted silver suture. The womb was retroflexed, and the cervical canal, patulous, was about an inch from the urethral orifice and on a lower plane. The cicatricial tissue resulting from these previous operations had to be removed, after which we closed the vesico-vaginal fistule by our first button-suture. Nearly all the urine still escaped through the split urethra and in the dorsal position; much ran back upon the anterior surface of vaginal patch, formed by the cervix uteri, and so into the cavity of the womb itself. We closed the urethral rent at a second operation and restored control over the urine by mechanically raising the cervix above the urethra. Then she could retain her water very well while lying down, and tolerably when standing or walking. On removing the supporter, the cervix would drop again and the urine resume its course into the womb. In the knee and elbow position the urine was seen to flow from the cervical canal and we mopped out the cavity of the womb. This might have been supposed to be a uretero-uterine fistule, and had the urine not been seen running back into the cervical canal while in the dorsal position, its escape from the os uteri might have been attributed to a fistule either between the cervix uteri and bladder, or between the cavity of the womb and one of the ureters. That neither of such channels existed was proven by plugging the urethra and mopping the cavity of the womb. But had there been a small vesico-uterine fistule high up, with this patulous state of the cervix, the urine escaping into the latter would have reached the cavity of the womb, and the true fistule, escaping observation, might have been deemed uretero-uterine. Then the only way to get at the truth would have been to plug the os interum and to ascertain positively that no vesico-uterine fistule existed, which we can do by the linen test, and not otherwise, in our experience. The removal of the plug from the os internum would have let the contained urine escape and so proved the existence of a uretero-uterine fistule.

Of uretero-vesico-vaginal fistules we can speak from sufficient ex-

* See full report, Am. Jour. Obstetrics, p. 108, May, 1870.

perience, having in 1856 adopted a simple and effective treatment, and since then found such fistules little if at all more troublesome than the common vesico-vaginal.* Paring the end of the ureter implicated, we thrust a pointed blade one-fourth of an inch up, and piercing it as well as the vesical mucous membrane, split them both down to the edge of the fistule. This gives the urine a fall into the bladder far enough from the united edges of the fistule, and leaves in the line of union the whole thickness of the vesico-vaginal septum. Were the fistule simply uretero-vaginal, the first step would be to convert it into a uretero-vesico-vaginal passage by incising the vesical mucous membrane. A uretero-vesico-vaginal fistule was brought to us for treatment a few weeks ago by the wife of a physician from the State of Kentucky, and was operated upon by us in presence of Prof. Boeck, of Christiana, Norway, and Drs. Lee, Jones, Richardson, and M. J. Moses, of this city.

Incarceration of the cervix uteri within the bladder is regarded by Prof. S. as an indication for kolpokleisis. In several such cases presented to us we have always disengaged the cervix and closed the fistule, restoring to the catamenia its natural outlet.†

Atresia of the vagina above the fistule indicates, says Prof. S., that we should close the vagina just below it, leaving the fistule open between the bladder and the diverticulum, thus formed by the two obliterated points of the vaginal canal. Has the surgeon no better resource than this blind imitation of Nature?

In 1860 Dr. Faget, of New Orleans, placed under our care Madame B., of that city, who had a small vesico-vaginal fistule in the trigone, with atresia vaginæ between this and the cervix so nearly complete that only the smallest probe could pass. More than an inch of the canal was imperforate. This we partially reopened before attempting to close the fistule, but we could not succeed until we had completely dilated the vagina; then control over the urine was restored, and our patient six months afterwards became pregnant.‡

In the annals of surgery, nay, even in those of psychology, we have met with nothing more astounding than Prof. S.'s assertion, by a gentleman of Prof. Simon's rank in our profession, that, after

* See Case VIII, "North Am. Med.-Chir. Review," July and Nov., 1857.

† See Case XV, op. cit. case reported in "Edinburgh Medical Journal," October, 1858, and Case XXXVIII, "New Orleans Medical and Surgical Journal," May, 1860.

‡ See "New Orleans Medical and Surgical Journal," July, 1860.

effecting kolpokleisis, the urine becomes healthy and does not harm the uterus, when we consider the deep pocket formed in the vagina with no other outlet than the small fistule into the bladder. These fistules, moreover, are very often found at the highest point of the vaginal pocket, thus favoring the retention of the urine, which at every menstruation will be mixed with the blood of this eliminative secretion, an admixture which can hardly fail to promote decomposition and its irritative sequences. Would Prof. Simon attribute then, to the vaginal mucous membrane the property of arresting fermentation, of preventing those well-known changes which urine undergoes when long confined in the bladder, forming earthy deposits, calculi, and acrid ammoniacal lixivia?

In the academic discussion of Jobert's elytroplastic cure, Gerdy, who found it difficult to believe that a piece of skin adherent with a mucous membrane could bear with impunity contact with urine, said, "We know, indeed, that urine has the property of irritating, inflaming, ulcerating, and striking with gangrene whatever it touches, the vagina itself cannot become accustomed to it."

Velpeau remarks,* "When the fistule gives passage to urine continually, the vagina, the vulva, and the thighs, bathed in this irritating liquid, are inflamed, excoriated, and become the seat of cutting pains, sometimes of pustules and of ulcerations which at first aspect might be supposed syphilitic. The lips of the wound gradually become hard, callous, and thickened." What was the final result of kolpokleisis in the first complete success obtained by transverse obliteration of the vagina in Germany? Its operator, Professor Wernher, of Geissen, replies to us December 12th, 1869, "My patient died last summer. At the autopsy I found in the vagina, above the seat of closure, a stone as big as a pigeon's eye." This completes the history.

Between Professor Wernher's case and ours there is a difference in character, which explains the difference in results after periods of twelve and eleven years respectively.

In the first case a partial atresia preëxisting had been completed below the fistule by Professor W., thus converting the vagina above the line of obliteration into a pouch for the retained urine. The accretion of stone which occurred here is a probable event in Dr. Sims' two cases, and in all that have this anatomical character. In

* "Leçons Orales," t. II, p. 242.

our own kolpokleisis, on the contrary, we obliterate the remaining urethral portion of the vagina up to the anterior border of the fistule, leaving no other pouch above than that formed between the posterior vaginal and the superior vesical walls, with the urethra at the most dependent portion of the same, and the cervix uteri at the most elevated Such are the conditions that expose least to retention of urine and to irritation of the genital organs.

The same objections apply in some measure to the practice of folding the cervix uteri and edges of the fistule inside of the bladder, as often done by leading surgeons. The vagina is here narrowed only in sections, and not necessarily incapacitated for its functions, but pouches are formed in the bladder. Several calculi, after such operations on the vagina, have been reported by Dr. Emmet, who advises vaginal lithotomy in connection with vesico-vaginal fistula.*

"We have seen the existence of calculi in the bladder cause perforation of the septum. The formation has generally been subsequent to the operation for the closure of a fistula, through which means the nucleus has been furnished, and a pouch in which the stone first became encysted."

As a stone in the bladder may occasion a fistule by the ulcerative absorption of the vesico-vaginal septum, so may another fistule be occasioned by the pressure of a stone in the vagina after its occlusion, or else the adhesions may give way below at the point of occlusion, a result not improbable after complete kolpokleisis during many years. Under our treatment at this moment is a fair example of Nature's kolpokleidic operations, in which, after having covered up and hid away old lesions, she has left the parts in a state analogous to that of surgical obliteration. The results before us teach what are to be expected from the latter, and confirm the previsions of pathological chemistry.

Mrs ——, of ——, Alabama, aged 23, a perfectly well-formed woman, after a first labor of eighty-four hours, March 31, 1865, lost by sloughing, part of the lower third of her vagina, which, on healing, left a small urethro-vesico vaginal fistule, and a recto-vaginal fistule higher up, with loss of control over the passage of either urine or feces. Under this persistent local irritation the vagina, just below the urinary fistule, continued, however, to contract,

* Treatise on vesico-vaginal fistula, p. 217, 1868.

enfolding both fistules until by degrees she had regained control over the excretions. Her general health improved, but eighteen months after the first injury, and in the fourth month of a second pregnancy, she miscarried. Cystitis soon after set in, with a profuse discharge of bloody mucus Five or six days of such painful inflammation continued, recurring at intervals of three or four months. It seemed to be provoked by the exertion of standing or walking too long. Still menstruation remained normal and general health fair, with increased retentive power. By the end of the third year her vagina seemed completely closed; she lay dry all night, and could be around in the day for several hours at a time without dribbling. But now came a change for the worse Upon over-exertion she became conscious of a fulness, as though something in the lower part of the vagina was pressing to come away, with urging to micturate every few minutes. This trouble increased until it culminated in an attack of cystitis. The urine, now always turbid, deposited a thick, tough slime, and smelt very strong after standing a little while. A year ago fatigue in nursing a friend brought on a severe attack, and which continued a whole month. The sanguinolent or brown turbid and offensive character of the urine has continued from that time with variations in degree up to the present date, at which we find it largely mixed with pus. During the past year her health has suffered much; she has become excessively nervous and her menstruation painful. A deep-seated pain is assigned to the left ovarian region, and soreness is complained of over the whole abdomen. Since last autumn the flow has lasted but two days, and the epochs been retarded eight or ten days. Excruciating lumbar pains coincide with the cystic exacerbations at intervals of only eight or ten days. She has repeatedly swooned from their severity and remained for hours unconscious. This unrelenting march in the gravity of her condition produced a state of anguish which, without positive derangement of mind, still urged towards suicide, but in this contention of spirit wiser counsels happily prevailed, and she has sought from the resources of surgery a salvation to which Nature has proved inadequate, although she has effected complete kolpokleisis, "*that most important plastic operation which, in the last decennia, has originated from one single man*".!.!.

Actual state, March 10th, 1870.—The vagina admits only a No.

6 bougie. The urethra is closed half an inch from the meatus. The vulva is much excoriated with scalding on passage of urine, which has been the case from the first. Attempts to dilate the vaginal stricture cause extreme pain.

Preliminary Operations.—Our first indication being to restore the vagina, we proceeded after etherization, assisted by Drs. T. C. Finnell and J. H. Hinton, of New York, to cut deep into the cicatricial band, from ½ to ¾ inch thick along its sides. Then we incised the posterior wall, introduced our speculum, and exposed the vagina above, which was deeply congested and dotted with little red spots over its anterior wall. A small urethro-vesico-vaginal fistule was brought into view just within the point of vaginal occlusion, and admitted a No. 4 bougie. The vaginal surface for nearly an inch above this point was studded with granulations that bled at the slightest touch. The neck of the womb was much enlarged and its mouth patulous. Pus escaped with the urine through a catheter in the bladder. We all three verified the purulent character of this discharge. The recto-vaginal fistule was reopened by our dilatation of the vagina. We shall reopen the urethral passage, and then close, first, the urethro-vesico-vaginal fistule; afterwards, the recto-vaginal fistule. Spontaneous atresia of the vagina had here restored continence of urine by drawing the small fistule up into the cicatricial band. The vaginal muscles could then aid the sphincter vesicæ in controlling the flow of urine through the urethro-vesical and vaginal orifices almost in juxtaposition. The urine, however, flowing into the vagina, had attacked its mucous membrane and the cervix, as betrayed by their congested, hemorrhagic, and patulous state. Endometritis and ovaritis had supervened upon the cystitis and vaginitis. The discharge of muco-pus is now about a half pint in twenty-four hours. The subjoined analysis by a highly competent person, Dr. Wm. B. Lewis, of this city, was made on a specimen of the urine drawn at the last exacerbation of our patient's cystic trouble, which occurred a few days after the operation precited:

"March 18. Odor: pungent, aromatic. Color and appearance: reddish, densely turbid. Sediment after standing: ⅛ bulk of specimen, rather close, but light, of a brownish-white color. Reaction: alkaline. Specific gravity: 1025. Earthy phosphates completely precipitated from supernatant fluid, but chlorides abun-

dant. Albumen: ½ of the whole volume. Microscopical: oil globules, minute crystals of triple phosphates, pus corpuscles, amorphous urates, and epithelium from the bladder. No casts were found. If present they would be found with great difficulty, as the strongly marked chemical characters of the specimen cloak the organic sediments and render their microscopical characters indefinite.

"The objects discovered by the microscope are in great part such as are naturally observed in alkaline urines. The features of this specimen indicate that the cystitis from which the patient suffers is largely due to retained urine and pus. The large proportion of the latter accounts for the albumen present."

We should state here, while the general character of the urine in this attack remained the same, as observed by the patient for months before this preliminary operation, there was marked amelioration in her sufferings. Only for a few moments at one time was the pain as severe as to cause swooning. The paroxysm was much shorter than usual, lasting only about two days, but the flow of mucus and pus continued the same as formerly, though diminished in quantity.

The patient's good constitution and the conservative reactions of her organism during the earlier stages of her traumatic malady, its continued and vigorous efforts for self-recovery, more frequent in ratio to the local irritation, in short, the whole picture before us confirming and elucidating the pathological history, forbids us to attribute the decline of health or sympathetic sufferings to other than hydraulic and chemical causes, viz: the stagnation of urine retained in contact with mucous surfaces unprepared to resist its irritating salts, and whose exudations of protective mucus have but increased the mischief by accelerating putrid fermentation. To open a free passage for discharge of these morbid secretions is the first step dictated by experience towards removing their causes.

We do not exhibit the foregoing as anything more than the particular application of a general principle. Lesions apparently the same, occasion different degrees of suffering in different patients. European, and especially German peasant women, may be more robust, more phlegmatic than our American women, but chemistry and mechanics are invariable. To their laws are due the fearful sufferings we have witnessed in case of spontaneous kolpokleisis,

and we venture to suggest that if the luminaries of German surgery will descend from their Olympian heights, look up their kolpokleidic cases and look into them again, they will see cause to change the note of triumphant gratulation with which Professor Simon announces his successful operations.—*Am. Jour. Med. Sci.*

PROFESSOR STRICKER ON THE QUESTION OF INFLAMMATION

THIS question, so important in relation to pathology and medicine in general, occupies at this moment the attention of two of the most rising German physiologists—namely, of Professor Cohnheim, of Kiel, and Professor Stricker, of Vienna. They stand in diametrical opposition to each other, and the pivot upon which the discussion rotates involves a question of no less importance than that of "humoral, or cellular pathology." Cohnheim is the champion of the first, and consequently rejects the teachings of Rokitansky, Virchow, Billroth, etc., on this point. Stricker, on the contrary, advocates the latter, and endeavors to reinstate the authority of those pathologists. We subjoin, therefore, an abstract of an address relating to this subject, recently delivered by Prof. Stricker before the Medical Society of Vienna:

"I shall shortly supplement," says he, "my views expressed last year on the inflammatory process by the results of further researches, but I have special reasons for making in the meanwhile the following statements:

"I have again experimentally and carefully examined the inflamed cornea of a frog, and the results of this examination enable me to declare that the inflammatory alterations of the corpuscles of the cornea may, as I formerly stated, be ranged among the best demonstrated facts with reference to cellular pathology.

"Pathologists will at once perceive the scope of such a statement. I must, nevertheless, express more precisely the principles I have in view. According to the earlier teachings of cellular pathology, the following propositions may be laid down:

"The life of an organ is the expression of the form-elements of which it is composed.

" Disease designates merely a phenomenal mode of life.

" When we say an organ is diseased, we indicate thereby that its vital processes are abnormal.

" With reference to the first proposition we indicate also thereby that the life of the form-elements equally deviates from the normal condition.

"These fundamental propositions have been contradicted by Cohnheim as regards the cornea.

"If, argues Cohnheim, those cells of the cornea not directly affected by irritation, are, as living organisms, not impelled to an abnormal life, then the above principles cannot stand; then we must differently define that disease of the cornea which physicians call inflammation; then this disease is no longer the expression of another phenomenal mode of life.

" If keratitis, under certain circumstances, signifies only a cornea clouded by foreign immigrants; if after the removal of the intruders the previous conditions are reinstated in their full integrity; then the principles of cellular pathology are no longer applicable.

" If, further, as has been done, the dogma of Cohnheim is generalized, then the principles of cellular pathology are generally no longer applicable.

" I have made a stand against such conceptions by showing that the cells of an inflamed tissue exhibit an altered mode of life, that they return to an embryonic condition, that their nuclei increase, grow, become amœboid and multiply. My late researches fully confirm these statements; I cannot in this place enter at length into these researches. I will nevertheless indicate a means by the aid of which professional men who, perhaps, may not be practised experimentalists may by the application of the microscope convince themselves, at all events, of the most important point—namely, that in intensely diseased spots of the cornea mere traces are found of the normal corpuscles, and that smaller more nucleated elements have supplanted them.

" Cut out the cornea of a healthy frog, bathe it for about ten minutes in a half per cent. solution of chloride of gold, place it in acidulated water, remove, after a few minutes, by gentle shaving, the anterior epithelium; replace the cornea in the acidulous water,

and examine the preparation after a day or two, and you will convince yourself of the normal arrangement of the corneal corpuscles in this animal.

"Immediately after cutting out one cornea, pass a needle with a strong double hemp-thread through the centrum corneæ of the other eye and its sclerotica, knot the thread and cut it short. After two or three days cut out this cornea also, and treat it as before. The anterior epithelium is here more easily detached by pincers as a whole lamina than in the healthy cornea. It is equally easy to detach the membrane of Descemet. The rest of the preparation—namely, the substantia propria—is then in glycerine, during the first few days at least, so transparent that no even moderately practised microscopist can find any difficulty, by means of rather high powers (No. 10 Hartnack), in examining it in all its depths. Should this method, as regards the depth dimensions, not prove sufficiently satisfactory to any one, let him tear the propria into lamellæ and examine them separately. Let him first with a low power search out the spots in which the form-elements in their strata are most thickly arranged. I must leave it to the judgment of the professional inquirer to draw from the examination of these spots such inferences as may be generally deduced.

"Should it, in spite of these spots, be asserted that the old corneal corpuscles were covered, and could not be seen, then I must —apart from the circumstance that such an objection would not be admitted by a practised microscopist—advert to the fact that it was just the discovery of old corneal corpuscles amidst the thickest crowd of pus corpuscles which first impelled Cohnheim not to regard the former as the sources of suppuration. If now the old corpuscles cannot be detected in certain spots, then the 'impelling momentum' vanishes.

"As I here address a large public, I must abstain from entering upon the method of research which has enabled me to prove the cell-division, and also that the corneal corpuscles become amœboid. Such methods will always remain the property of a very limited circle of inquirers.

"So long, therefore, as these questions are contradicted, I can do nothing but wait until competent and unprejudiced inquirers take up this subject. But the illustrations, which are now ready, and

to which I again refer, are accessible to a larger circle, and I fully expect that they will confirm my statements.

"The results of further researches will appear in another place. This much I may say, that the same principle, the growth and the increase of cells, show themselves in all inflamed organs. We can not at present cultivate the pathology of the tissues without acknowledging this tenet.

"In a former treatise I passed with one step beyond the doctrines of cellular pathology. I tried to demonstrate that disturbed circulation and exudation of fluid, shapeless, and shaped constituents of the blood, play an important part in the chain of inflammatory phenomena. In this direction I have also advanced, or, to speak more correctly, retrograded. I must at present range stasis among disturbances of the circulation, and I shall, in the proper place, produce the necessary proofs for this view.

"As it was my intention to give this day only a summary, I must confine myself to a simple indication, from which, however, you may infer that I conjoin two historically separated theories long held to be incompatible. I accept again the symptoms of inflammation as taught by Rokitansky. I say that inflammation includes redness, stasis, and exudation, and I leave this old exposition at the point where the progress of the cellular theory has led us to securer roads. With exudation I combine the processes in the cell-elements, as taught, and we may assume will still be taught, by Virchow. I moreover see with pleasure that there obtains a disposition logically to conjoin one part of the teachings of Rokitansky with one part of those of Virchow. I see also with satisfaction that the theories of successive systems, which were successively adopted and successively rejected, are now looked upon as reconcilable."—*London Med. Times and Gazette.*

AN INQUIRY INTO THE NATURE, ORIGIN, AND TREATMENT OF HYSTERIC DISEASES.*

In the first part of this paper the author gave an elaborate review of the history of hysteric diseases from the earliest ages to the

* Abstract of a Paper read at a meeting of the Royal Medical and Chirurgical Society, 8th March, by Robert Lee, M. D., and published in the London "Medical Times and Gazette."

present time. The opinions and methods of treatment adopted by Aretæus, Galen, Celsus, Sydenham, Hoffman, Cullen, and the most eminent writers of the present century, were given in detail. Respecting hysteria in the male sex, the author stated that he had never seen a genuine example; but in the female sex, a great number—a greater number than it was possible for him to state. An accurate report of upwards of two hundred of these cases accompanied the communication. If these histories were examined, the author stated the following conclusions might be drawn: In none did the disease occur before the age of puberty, and in few after the middle period of life. In few of the cases recorded were the functions of the ovaries and uterus in a perfectly healthy state. In the greater number there was amenorrhœa, dysmenorrhœa, menorrhagia, leucorrhœa, or a morbid state of increased or diminished sensibility in the uterine organs, without any organic disease. The author added that, in the greater number, there was incurable sterility; and he stated that he had been led to conclude from the symptoms observed in these cases that hysteria originates in the ovary, on which menstruation depends, in which conception takes place, and to the influence of which are to be attributed the development of the female pelvis and mammæ, and all the peculiarities of the female constitution. The result of the author's dissections of the renal ganglia and nerves, and those of the ovary, now in the museum of the University at Cambridge, were given; and from them an explanation was given of the cause of the discharge of a great quantity of clear urine after the hysteric paroxysms. Other seats of hysteria were then described, with a letter on the subject from Mr Joseph Swan. The paper concluded with a summary of the different remedies employed in the two hundred cases; the two last of these methods of treatment were clitoridectomy and cutting away of the coccyx.

Dr. Schulhof said that, in a large number of hysterical patients whom he had examined, in nine out of ten he had found the spine not perfectly straight. There was not visible deformity; but the displacement was sufficient, he thought, to produce pressure on the ganglia.

Mr. Barwell could not agree with Dr. Schulhof's view, seeing that in very many cases of well-marked spinal deformity, where (especially in angular curvature) pressure on the nerves would be expected, hysteria was absent.

Dr. Buzzard had, from his observations at the Hospital for the paralyzed and Epileptic, been led to divide hysteria into several classes. One class was represented by young women who, without disorder of the uterine functions, were paralyzed in one or more limbs. In these cases he thought the disorder of mental origin; it was best treated by acting on the imagination or attention. Next, there were the cases presenting the well-known hysterical symptoms. And, finally, there were the hysterical fits or seizures, which it was difficult to distinguish from epileptic attacks. The idea of hysteria in Dr. Lee's paper was too limited; it did not take in hysterical convulsions. He doubted whether it was quite correct to refer all cases of apparent paralysis to hysteria; another term ought, perhaps, to be adopted for these.

Mr. Hovell said that the term hysteria was too loosely applied, and ought to be restricted to disorders arising from uterine irritation. He would suggest the term "emotional susceptibility" for many of those conditions which were described as hysteria; and this would coincide with the opinion of the late Sir B. Brodie. Hysteria was, he thought, referable rather to mental or moral shock than to uterine irritation; and this would account for its occasional occurrence in men. The shock probably acted on the sympathetic nerve; and hence arose the palpitation and flushing of the face; and the paralysis (or, more properly, paresis) would be accounted for by the disturbance of the nutritive function through the vaso-motor nerves.

Dr. Wynn Williams said that the term hysteria seemed to be made to include all diseases that people could make nothing of. Ovarian mischief would no doubt cause hysterical symptoms in some cases; but in many these depended on uterine displacement, with which indeed the ovaries often sympathized. The replacement of the uterus would remove the symptoms.

Dr. Barclay did not think that hysteria was so often connected with uterine affections. There was no form of uterine or of ovarian disease that might not exist without hysteria. He was surprised that Dr. Lee should regard the ovaries as the origin of hysteria; he had seen cases in the male which he should regard as hysterical. He believed that hysteria depended on a peculiar mental and nervous organization, dependent on sex in the same way as were the modifications in the osseous and other structures. The hysterical

symptoms connected with the uterus could not, he thought, be formed into a class separate from those arising from derangements of other organs.

Mr. Holmes was not sure that Dr. Lee laid down absolutely that hysteria depended on the ovaries. He appeared to refer in his paper to hysteria arising from other sources, such as irritation of the nerves at the neck of the uterus.

Dr. Barnes agreed with Dr. Lee as to the connection of the ovaries with hysteria. The term hysteria was applied when the uterus was supposed to be everything—when it was that "*Mulier est propter uterum.*" Within the last thirty or forty years it had become recognized that the ovary was the source of physiological changes in the female. No doubt it had the power of evoking nervous phenomena. The first attack of hysteria came on with menstruation, and in many instances it attended the menstrual epochs. Disturbed ovarian function attended many cases of uterine disease. If the physiological flow of blood to the sexual organs could not be relieved through the uterus, nervous symptoms would set in. Treatment directed merely to the nervous system might fail; the connection between the uterus and ovaries should be remembered, and the uterine disorder treated, if one were found to be present.—*Half-Yearly Abstract.*

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

A MEDICO-LEGAL STUDY OF THE CASE OF DANIEL McFARLAND. By William A. Hammond, M. D., Professor, etc., etc. (From the Journal of Psychological Medicine for July, 1870.) New York: D. Appleton & Co. 1870.

THERE are probably few medical men who read the testimony in the McFarland case, without regret and mortification at the part played by the gentlemen summoned as medical experts. We were disposed to take consolation in the thought that the reporters for the daily press were responsible for most of the absurdities attributed to these witnesses, knowing the imperfectness of such reports generally. We must confess to no little surprise on receiving the pamphlet with the above title, a surprise much increased by its perusal. Dr. Hammond tells us: "That the principles which it enunciates are true will scarcely, I think, be questioned by those whose knowledge of psychological medicine gives any value to their opinions; that those principles are applicable to the chief actor in the tragedy will not, I imagine, be doubted by those whose judgments are not warped by a prejudice more powerful even than ignorance." We fear that we shall be condemned both as ignorant "of psychological medicine" and "warped by a prejudice more powerful even than ignorance," for we most decidedly question the truth of the principles enunciated, and, whether true or false, object to their applicability to "the chief actor in the tragedy."

Dr. Hammond defines the mind "as a force developed by nervous action," and "appropriately divisible into four distinct parts: the perception, the intellect, the emotions and the will." After specifying various forms of insanity in which these "parts" of the mind may be disordered, either individually or collectively, he arrives at the sage conclusion that insanity is "a manifestation of disease of the brain, characterized by a general or partial derangement of one or more faculties of the mind, and in which, while consciousness is not abolished, mental freedom is perverted, weak-

ened, or destroyed." Several pages are next given to the consideration of "temporary insanity," with a description of its symptoms —the significance of which he by no means makes clear. The distinction drawn between "temporary insanity" and "heat of passion" is so charming a specimen of sophistical reasoning that we give it in full:

"But the plea of temporary insanity is often abused. Suicide is extenuated, and criminals escape, on the ground that their acts, committed in the 'heat of passion,' are perpetrated during an attack of temporary insanity.

"1. Premising, therefore, that there is no doubt that emotion may giverise to temporary insanity, I proceed to indicate the marked differences which exist between 'heat of passion' and temporary insanity. To do this effectually, clear ideas must first be formed of the meaning of certain terms.

"2. An emotion is that pleasurable or painful sensation which arises in us in consequence of sensorial impressions or intellectual action. According to Bain, the word emotion is used to comprehend all that is understood by feelings, states of feelings, pleasure, pain, passion, sentiments, affection, etc.

"3. Passion is emotional activity. It designates that state of the mind in which certain impressions or emotions are felt, and which is accompanied by a tendency or impulse, often irresistable, to act in accordance with these impressions or emotions irrespective of the intellect. An act performed in 'the heat of passion' is one prompted by an emotion which, for the moment, controls the will, the intellect not being called into action. It is an act, therefore, performed without reflection. (*a.*) The passions are to a certain extent under the control of the will; and this power of checking their manifestations is capable of being greatly increased by self-discipline. Some persons hold their passions in entire subjugation, others are led away by very slight emotional disturbances. (*b.*) The law recognizes the natural weakness of man in this respect, and wisely discriminates between an act done after due reflection and one committed in the midst of passional excitement.

"4. The acts performed during temporary insanity, in their more obvious aspects, and when viewed isolatedly, resemble those done in the heat of passion. *But they are so only as regards the acts themselves.* (*a*) Thus, a person entering a room at the very moment when one man was in the act of shooting another, would be unable to tell whether the homicide was done in the 'heat of passion,' or under the influence of temporary insanity. (*b.*) He would be equally unable to say whether it was committed with malice aforethought or in self-defence. (*c.*) The act, therefore, can teach us nothing, We must look to the circumstances and to the antecedents of the perpetrator for the facts which are to enlighten us as to the state of mind of the actor. Now, the conditions of temporary insanity are so well marked, that there can be no difficulty on this score, and those which precede the act of culmination have already been dwelt upon at sufficient length: suffice it, therefore, to repeat, *that the act which marks the height of the paroxysm is always preceded*

by symptoms of mental aberration, while acts done in the heat of passion are not thus foreshadowed.

"5. And, as regards the subsequent state of the individual, the distinction is equally apparent. (*a.*) The one who has committed a criminal act in the heat of passion, soon subsides to his ordinary equanimity, and begins to think of his safety. (*b.*) The other, who has perpetrated a similar act during an attack of temporary insanity, never thinks of escape, nor even avoids publicity. He may even boast of his conduct, or deliver himself into the hands of the law. (*c.*) What is, however, of greater importance, is the fact that, though he may subside into a condition of comparative sanity, *the evidences of disease are still present, and remain in him for days, weeks, or even months and years.* These symptoms are in general those of cerebral congestion, to which attention has already been directed.

"6. In the heat of passion the act follows immediately on the excitation of which it is the logical sequence. In temporary insanity, the act is the culmination of a series of disordered physical and mental manifestations, and may or may not be in relation with the emotional cause

"7 Bellart, quoted by Devergie, has said that, by assimilating the passions to mental alienation, immorality is justified: it is placed upon the same level as calamity. The man who acts under the influence of calamity obeys, as a machine, a force, the power of which he cannot contend with How far the accused in the present case was acting from passion, and how far he was under the influence of a calamity, the force of which he could not resist, will be apparent from a consideration of the facts developed during the trial, and those which I have ascertained by my personal examination."

"A consideration of the facts developed during the trial," and those which he ascertained by his personal examination, amounts to about this: The accused was a married man, devotedly attached to his family; his wife had left him, taking with her both the children, and opposing the legal proceedings which he had instituted for their recovery, aided by the money of the deceased, Richardson; that he was greatly excited by these difficulties and misfortunes was clear; the excitement was increased by hearing that his wife had obtained a divorce in Indiana; and, finally, on meeting Richardson, whom he regarded as the sole cause of his unhappiness, he shot him down, walked to his hotel, and remained quietly there until arrested. As to the personal examination, made by Dr. Hammond three months after the homicide, and while McFarland was in prison awaiting trial, but little need be said; that he was in a nervous and excitable state of mind might readily be supposed from the circumstances under which he was placed, and this is about all that Dr. Hammond seems to have discovered.

That McFarland was deserving of great sympathy in his mis-

fortunes—that he acted under the strongest provocatives, we are not prepared to deny. We may frankly admit that the circumstances were such as to render the homicide justifiable. But to acquit the prisoner on a verdict based upon the views expressed by the medical experts for the defence (of whom the writer was one), strikes us as neither creditable to the jury, nor to the medical experts. If "the views expressed by the medical experts for the defence" mean anything, it is that all anger is insanity; that an angry man is not to be held responsible for anything he may do. The distinction attempted to be drawn by Dr. Hammond between "temporary insanity" and "heat of passion" seems based on the assumption that heat of passion, or anger, is always of but momentary duration. The excitement before and after the trial was only such as any sensitive mind would feel under similar provocation; and to denominate it insanity for the purpose of defeating justice, we cannot but regard as tampering with truth, and setting a most dangerous precedent.

For Dr. Hammond, personally and professionally, we have the highest regard and esteem; but feeling convinced that a great error has been committed—an error the more pernicious from the distinguished position its author holds in the profession—we feel compelled to enter a solemn protest against such misapplication of our science. E. L. H.

THE PHYSICAL EXPLORATION OF THE RECTUM: WITH AN APPENDIX ON THE LIGATION OF HÆMORRHOIDAL TUMORS. By William Bodenhamer, A. M., M. D. Illustrated. New York: William Wood & Co. 1870.

On a former occasion we noticed the labors of Dr. Bodenhamer in the special field he has selected, and again express our gratification at having "light thrown upon obscure places."

The work before us is what its title designates—a description of instruments for examining the rectum, and the proper mode for their application. The article on "Ligation of Hæmorrhoidal Tumors" was called forth by a discussion in the New York Medical Journal Association, and, as it contains some valuable suggestions, we transfer a portion to our columns:

"The circumstance, then, of the danger, pain and inconveniences attending the old operation led me, about twenty-five years ago, to seek for information in relation to it, with a view, if possible, to remove some of the obnoxious features of it, or so to modify it as to make it less objectionable and serious,

without, at the same time, rendering it any less efficacious in the cure of the disease. I first began by making some experiments upon both internal and external hæmorrhoidal tumors, when in a quiescent state, expressly with a view to ascertain whether any point or portion of the tumor was more sensitive than another, and more especially whether the mucous membrane, or other tissue from which such tumor proceeded, was more or less sensitive than the tumor itself or its covering. The experiments were conducted by means of a peculiar forceps, expressly made for the purpose. The apex of the tumor was first seized by the instrument, and firm compression made; the middle portion next, then the base, and lastly a portion of the lining membrane of the rectum, to which the tumor was attached, was included in the blades of the forceps. I found that in proportion as the compression reached the base of the tumor the pain was increased, and when a portion of the mucous membrane of the rectum or other tissue was included in the blades of the forceps, the pain was very severe. I have ever since, in operating, been very careful so to adjust the ligature as not to tie it too close to the base, and that nothing but the tumor itself should be included in its grasp. Now the question naturally arises, what is the cause of this difference in the sensibility of the natural textures from which the tumor proceeds and those of the tumor or foreign growth itself? The most rational inference which occurs to my mind at present is that the former are more abundantly supplied with nerves and nervous influence than the latter. Be this as it may, however, the fact is as I have stated it, and it is in the power of any student to verify it. But on this, as on many other points of pathology and physiology, we are sometimes much better acquainted with the *quo* than with the *quomodo;* in other words, we know the facts, but we cannot well explain them. My researches on this subject have plainly taught me that so far as the natural tissues are concerned, the fine and delicate skin immediately without the anal orifice is the most sensitive; that the muco-cutaneous coat immediately within the anal orifice is next in point of sensibility, and that the mucous membrane of the rectum is the least sensitive of the three. I, therefore, do not agree with Dr. Post when he says he thinks the mucous membrane more sensitive than that of almost any other part. I, however, have found the mucous membrane of the rectum much more sensitive than the mucous membrane covering the tumor. This must not be forgotten. Indeed, the foreign body and its covering, unless entirely external and covered with true skin, are much less sensitive than the three natural textures previously named.

I now propose to offer some improvements in the operation of ligating hæmorrhoidal tumors, the success of which has been invariable, and warranted by an experience of upwards of twenty-five years.

By my method of operating, the tumor to be ligated is never seized by tenaculum nor forceps and pulled down; for if this is done a portion of the elastic mucous membrane of the rectum, to which the tumor adheres, also comes down with it, and therefore is almost certain to be included in the grasp of the ligature—hence the additional pain and suffering which necessarily follow; for the operator cannot distinguish the true base of the tumor from any other part when drawn down in this manner, for all the parts generally

have the same appearance. I always require my patients to extrude the tumors simply by defecating efforts, or by the efforts produced by means of an aperient or a relaxing enema. If one or all these means should fail to protrude the tumors, I employ a bi-valve speculum ani, introducing and arranging it in such manner that the tumor which I design to ligate should fall between its blades; then, with suitable instruments, it can be ligated within the canal just as easily as if it were extruded or external. I scarcely ever take up more than one tumor at one time, and never employ a heavy silk cord with a hard twist in it, such as saddlers' silk, which is the article often used for this purpose, but use a fine silk ligature, well waxed, with hardly any twist in it, somewhat like floss or dentists' silk; for in proportion to the size of the ligature and the hard twist in it will be the increased pain it will occasion, and the length of time it will take the tumor to slough off. As before observed, I am careful so to adjust the ligature as to exclude everything but the foreign body itself, and only make the ligature sufficiently tight to cut off the circulation—nothing more nor less. This can be known and adjudged by the appearance of the tumor whilst the ligature is being tightened. I am also careful not to place the ligature very near to the base of the tumor, as this produces more pain, and is not any more effectual in removing the whole of it. The small portion of the base of the tumor below the ligature will also sooner or later completely slough off. When the tumor is very large, or too large for one ligature, I divide it into two or more sections, according to its size, and multiply the ligatures, including but a small portion of the tumor in each. This is done by arming a suitably curved needle with a double ligature, passing it through the base of the tumor, and if necessary repassing it, and tying each ligature separately—thus including in the stitches every part of the tumor, and underlaying it, as it were, with a double uninterrupted suture. When part of the tumor is covered with true skin, or muco-cutaneous tissue, I usually incise this upon the same circle which is to receive the ligature afterwards, by which more or less suffering is avoided. I sometimes, when the tumor is entirely external and covered with true skin, and objection made to the knife or curved scissors, ligate it subcutaneously, which causes it to shrivel and gradually to disappear. By this operation the integument is not interfered with, and much pain, suffering and inconvenience from the ligature otherwise applied are avoided. The subcutaneous ligation of external hæmorrhoids consists in encircling the base of the tumor with a ligature passed immediately beneath the skin. This is accomplished by the use of a proper needle, describing a considerable curve, and with it to puncture the tumor at a suitable place, and to carry a ligature subcutaneously half round the same. The needle is then to be brought out at this point, and reintroduced at the point of exit and carried round the other half to the original point of entrance and then tied. If the tumor is large it may be divided into two or more sections, as before described. This is the operation which is sometimes employed for the removal of nævi.

The *modus operandi* of the ligature is this: it removes the tumor or foreign growth by two processes—first, by depriving it of its due supply of blood;

and secondly, by making its way through the base of the tumor by ulcerative absorption. Now, while it is obvious that the first of these effects may be accomplished by the application of the finest and softest ligature, it is equally clear that the larger and harder the substance of the ligature is, the longer the time it will take, and the more extensive the inflammation, pain or irritation it will produce in accomplishing the second. I repeat, then, that when a strong, silk cord is used as a ligature, which is comparatively a rough substance, especially when hard twisted, it will, by its mechanical attrition, produce more inflammation and pain, and continue them longer, than when the ligature is finer, softer, not much twisted and not drawn too tightly. I therefore again disagree with Dr. Post, who maintains that "the severe pain attending the use of the ligature is diminished by having it very strong and drawing it very tightly." Sir Astley Cooper says that the pain which the ligature produces may be mitigated by not drawing it too tight. This excellent advice, however, is liable to be abused, inasmuch as it is not sufficiently definite. The ligature must be drawn tight enough to interrupt all kind of circulation and physiological action in the tumor; if this is not accomplished, the tumor will not perish, or perish very slowly, and more or less sensibility will remain in it. The desirable end, the complete destruction of the tumor, can be attained, however, without making the ligature as tight as it can be. The tumor, thus deprived of its vitality, first becomes blue or livid, and then softens, shrinks, and loses its volume, and acts in the same manner as any dead foreign body which must necessarily come away through the eliminating powers of the system. When the entire physiological circulation of the tumor is suspended for twenty-four hours, the principal object of the operation is attained. After this the final result will be the same, whether the ligature remains on till the tumor drops, comes off accidentaliy, or is intentionally removed. When there is pain, after a certain period, the pain is not in the tumor itself, but in the contiguous natural textures not included in the grasp of the ligatures.

As true hæmorrhoidal tumors vary in locality, structure, numbers, size, vascularity, sensibility, &c., so do they require modifications of treatment. Those in which, more than any others, ligation is more especially indicated, are the internal ones, which are florid, soft, and highly vascular, which protrude readily and bleed freely; also those internal ones which are indurated, dark, firm, with little sensibility, protruding at each evacuation, and attended with a free mucous discharge. Those round and sometimes blue tumors, located at the margin of the anus, and covered partly with mucous and partly with muco-cutaneous tissue, should, when large, be ligated, after incising that part covered with the muco-cutaneous tissue. When any of these are very small and quiescent, they may be let alone, but when any of these small ones are hard, distended, and painful, they should be punctured with a lancet and their contents completely let out. Those tumors that are altogether external, or completely without the anus, and covered with true skin, should be removed by the knife or curved scissors or ligated subcutaneously.

I am never in the habit of ligating hæmorrhoids when they are in an irritable or inflamed condition, but wait until the irritability or inflammation has spontaneously subsided, or has been subdued by proper treatment. It often occurs

that among several tumors which are in a quiescent state, there will be found one highly sensitive and irritable. This one may be easily distinguished from the rest by its florid appearance, or by its being tense, tender and painful upon pressure. If the operation is performed when the tumor or tumors are irritable or inflamed, the pain and suffering will be greatly augmented. I sometimes remove the inflammation, the irritation or the sensibility of the tumor or tumors by the application of a solution of the nitrate of silver, applied by means of a camel-hair pencil, and immediately after apply olive oil to the same. Two or three of these applications in as many days are usually sufficient. The solution should be of such strength as not to produce a slough, not to abrade or to injure the surface. All that is required is the sedative power of the caustic, without its injurious effects. If applied of a certain strength, say from ten to fifteen grains of the crystals to one ounce of distilled rose water, it will diminish the sensibility and irritability in a most remarkable manner. The patient, in the meantime, should live on bland and unirritating diet, and his bowels should be relieved entirely by enemata of the infusion of linseed. to which a little castor or olive oil should be added.

Now, if what I have stated in relation to the ligation of hæmorrhoidal tumors be true, and the statements can easily be verified by competent persons, my method of operating is far superior to that practised by surgeons generally, and at least equal, if not superior, to that practised by some of the irregular practitioners mentioned by Dr. Carroll. It is much safer, very much milder. and equally as certain and effectual. It is seldom that my patients, during the whole course of treatment, are ever confined for a moment to either their rooms or their beds, but are enabled at all times to be up and attend to ordinary business."

MISCELLANEOUS.

Liebig on the Source of Muscular Force.—There are at present two theories of the source of muscular force: (1) that it arises from decomposition of the nitrogenous substance of the muscle, in which decomposition oxygen plays a part—though not an essential part; (2) that it is due to the combustion of non-nitrogenous material.

The former theory is that maintained by Liebig, the latter is denied by Liebig, who urges objections to it in the third section of his recent memoir.

This theory was propounded by Fick and Wislicenus a few years ago, and developed by Frankland, whose statement of the *modus operandi* during muscular action is as follows:—

Both the oxygen and the combustible nutritive material are contained in the blood which circulates through the muscle. So long as the muscle is at rest they do not act chemically upon one another, but so soon as the brain sends an impulse to the muscle through the nerves, so soon oxidation begins. In this oxidation potential force becomes actual force, part of which takes the form of mechanical motion, and part the form of heat. Such is the source of the muscular power and of the heat which accompanies muscular exertion. The muscle itself is somewhat analogous to the piston and cylinder of a steam engine, and the urea formed during muscular action is to be looked upon in the light of material which has degenerated by friction, being the index to the mere wear and tear of the instrument.

This view owed its origin to the now well known ascent of the Faulhorn by Fick and Wislicenus, which was performed on a strictly non-nitrogenous diet, and during which the excretion of urea was determined, and found not to be increased above the average.

Fick and Wislicenus argued that inasmuch as they took no nitrogenous food, and excreted no more nitrogen than usual in the form

of urea, and yet performed an excessive amount of muscular work, it is impossible that muscular forces can be the result of decomposition of muscle into urea and other products, and that therefore muscular forces must have another source, and that source they declared to be the oxidation of non-nitrogenous diet indulged in during the memorable Alpine journey.

Liebig points out that they omitted to determine the quantity of nitrogen passed in the fæces, and that they did not weigh themselves before and after the journey.

If the animal economy were like a gun instead of being like a watch, reasoning such as the above might be valid. Quoting some experiments by Dr. Parkes, he shows that the increase in the excretion of urea is to be observed a *few days after* violent muscular exercise. He further points out that the production of urea in the body is not exclusively due to muscular action, and cannot therefore be looked on as the measure of muscular decomposition. Liebig's own account of muscular action is that during it the products of metamorphosis accumulate in the structure of the muscle, and that this accumulation occasions the well-known sense of muscular fatigue. After the muscular exertion is over there is gradual cleansing of the muscular structure, and with this cleansing the sense of fatigue goes away also. Against the theory that oxidation of non-nitrogenous material in the circulating fluid is the cause of muscular action, he adduces the fact that isolated pieces of muscular structure which have been washed with a weak saline solution exhibit muscular action when properly stimulated.—*London Medical Times and Gazette.*

Cure of Snake-bite by Dr. Halford's Remedy.—Dr. Meyler, of Bambra, has forwarded to the *Melbourne Argus* an interesting case of snake poisoning cured by the adoption of Dr. Halford's remedy. The patient, Mrs. Parker of Bambra, at ten o'clock A. M., on February 18, when going down to the creek to get a bucket of water, was bitten in the leg by a tiger snake about four feet in length. She immediately placed a ligature above the bite, and hurried up the hill to her house, which is about forty yards from the creek, when she felt very faint and vomited. She sent her children across to Mr. Giles, who came and offered to cut the bite out, but she would not let him, but desired to be brought immediately to Dr.

Meyler, at Winchelsea. She took a dose of brandy previous to getting into the wagonnette. On arriving at Winchelsea, a distance of fourteen miles, she was completely comatose, having to be carried into the house. The pupils were fixed, dilated, and insensible to light. The bite on the leg was red and showed two distinct punctures. Dr. Meyler gave a dose of brandy and water, which there was some difficulty in getting her to swallow. Afterwards he gave her a dose of aromatic spirits of ammonia and water. After half an hour, finding that she showed no sign of rallying, the Doctor determined to use Professor Halford's remedy. Having bound up the right arm as if for the purpose of bleeding, he made an incision of an inch and a quarter through the skin over the cephalic vein, and having freely exposed the vein, he injected a mixture of ten drops of the strongest ammonia and fifty drops of water. During the operation she was quite insensible. Before half a minute had elapsed, a tremor seemed to pass through the whole body, and she roused up into consciousness, and said there was fire going up her arm and down her side. The pulse became fuller, and the temperature of the body was sensibly increased. In a quarter of an hour she became hungry, and ate bread and butter, and from that time rapidly recovered. The incision at the bend of the elbow, which had been closed with sticking-plaster on the morning of the 19th, is now, (February 22) healing nicely, just as one caused by bleeding would, there being neither pain nor sign of inflammation. It was remarked that ten minutes after Mrs. Parker was bitten, that is, one hour before she tasted the dose of brandy, it was very difficult to keep her awake, so powerfully had the poison affected her.—*Medical Times and Gazette.*

Carbonic Acid.—At a late lecture, Dr. Richardson took for his subject some new and curious points relating to the physiological action of carbonic acid After briefly describing the chief physiological facts ascertained since the discovery of carbonic acid as a product of the respiratory process by the illustrious Black, the lecturer proceeded to illustrate the effect of carbonic acid on animal and vegetable fluids. He said that his friend, the eminent chemist, Dr. F. Versmann, in studying the manufacture of some medicinal waters, had found, much to his annoyance, that when carbonic acid, with a little soda, was brought into contact under pressure

with some vegetable infusions, the gas was fixed to a large extent, and the infusion was quickly transformed into a thickly glairy fluid. Some infusion of orange and gentian treated in this manner was shown: the liquid was beautifully transparent, but glairy and thick, and, when transferred from one vessel to another, it turned out in a mass like albumen. This observation suggested to Dr. Richardson the importance of experimental inquiry as to the influence of carbonic acid on animal fluids, on the mucous secretion of the air-passages, on albumen, on serum, on solution of muscle, on fibrine, on blood, on blood-corpuscles, on bile, milk, and other animal secretions. He now showed some of his results, especially those relating to the precipitation of colloids. Albumen was shown as precipitated from serum, fibrine from a solution of muscular fibrine, and fibrine from solution in blood. Next it was demonstrated that the blood corpuscles by exerting a condensing effect on the acid prevented it by their presence from precipitating the colloids; and lastly, it was demonstrated that freshly-drawn defibrinated blood, subjected to carbonic acid under pressure, while it was rendered very dark by the process, on being exposed to the air at 60° Fahr. gave up the acid and seized oxygen in place of it with such avidity that a surface of blood a foot square was changed almost instantaneously from deep-black into bright-red arterial blood. Thus, the lecturer reasoned, carbonic acid on the blood side of the pulminary vesicular surface is as important a necessity for respiration as is oxygen on the air side. Such are a few of the simple but interesting points of this lecture, of which we need say no more now, since in due course it will appear in our columns in full.—*London Medical Times and Gazette.*

Treatment of Aneurism.—Dr. George W. Balfour contributes a series of cases of internal aneurism, treated by iodide of potassium, in doses of 20 or 30 grains, three times daily. His increased experience has, he believes, fully justified the opinion formerly expressed by him regarding the efficacy of this mode of treatment, as being the best hitherto devised for the relief, if not cure, of this formidable malady.

Dr. Von Langenbeck has employed the subcutaneous injection of ergotine, in the treatment of aneurism, in two cases. In one, an aneurism of the radial artery, a single injection was sufficient to

cure the disease; in the other, a subclavian aneurism, the remedy was used with much benefit. He believes the ergotine to act, by exciting contraction of the involuntary muscular fibres in the arterial wall.

Professor Zdekaner speaks highly of the treatment of aneurism of the aorta by the galvanic method. He introduces three to six steel needles at points about an inch and a quarter distant from each other. They are to be inserted in a convergent direction, but so that the points do not touch. He employs moderate currents, and connects the needles with the positive pole of the battery, the negative pole being connected with a sponge, and applied at different parts of the tumor.

Hoegh relates a case in which an aneurism of the arch of the aorta was cured by the administration of large doses of acetate of lead. Four grains were given morning and evening, and the dose was increased by two grains every eighth day. When the dose reached 30 grains, symptoms of lead poisoning appeared, which yielded to treatment within a month. By this time the pulsation in the tumor had diminished. Some months after, the tumor having again begun to increase, the lead treatment was again resorted to with benefit. Five separate courses of the acetate were given during four years, the administration of the remedy being pushed to the point of the production of symptoms of lead poisoning, with the ultimate result of cure of the disease.—*Dublin Quarterly Journal of Medical Science.*

In Itch, styrax has been recently strongly recommended, as was formerly stated in this journal. More recently the balsam of Peru has been said to be equally successful, and from its liquidity more readily applied. It is more expensive than styrax; but, from less being required, it is actually a cheaper remedy. No hospital treatment for such cases is now required. The patient is stripped and well and carefully rubbed over with Peru balsam from crown to heel, avoiding the production of abrasions. It soaks into the galleries and eggs, and kills everything on the body in an hour. A second rubbing, ten days after, destroys any stray animalculæ or products of eggs that may by chance have been in the clothes at the first rubbing, and thus does away with any need for baking or otherwise disinfecting the clothing.—*Edinburgh Medical Journal.*

Prognosis in Hepatic Abscess.—Dr. W. Stewart, in the "Lancet," states, as the result of a large experience in India, that where hepatic abscesses burst through the right lung, recovery is not uncommon under ordinary restorative and expectant treatment, while in cases where the discharge took place through other channels, "as into the transverse colon, stomach, etc., or externally through the parietes of the thorax or abdomen, whether naturally or by artificial opening," he has not met with a favorable termination. He hence concludes that "prognosis is favorable in uncomplicated cases, when the abscess makes its way through the lung. In such cases the abscess occupies the upper or convex portion of the liver, near the suspensory ligament; adhesive inflammation occurs on its outer surface; the diaphragm forms a part of the sac, and its substance is gradually removed by progressive absorption. If, at the same time, adhesion takes place between the diaphragmatic and pulmonary pleura, the abscess will open into the parenchyma of the lung, and be discharged more or less completely by expectoration. In such cases the matter may escape by a small opening directly into a bronchial tube, or filter through immeasurably small orifices into the air cells; and the process of filtration and aspiration, if I may so express it, following on the respiratory acts, may be the reason why such abscesses do not have an unhealthy action —ordinary atmospheric air carrying 'septic germs' being excluded— the products of respiration alone taking the place of the expectorated matter, and being continually renewed by the same process."

Criminal Abortion—Rupture of the Uterus.—An inquest held at Islington upon the body of a woman who had been attended by two surgeons, one of whom is said to be a homæopath, has resulted in the verdict that "deceased died from an operation performed on her, and that that operation was to procure abortion; but how or by whom that operation was performed there is not sufficient evidence to show." The surgeon on whom the suspicion rested did not make his appearance. He is said to be an old practitioner, who has virtually retired from his profession, and there does not appear to have been any pecuniary motive for the performance of a criminal act. All that came out was that he performed some operation on the Monday, which he himself said was for piles. The woman died on the Thursday, after exhibiting symptoms of

peritonitis, and after death the uterus was found to be ruptured posteriorly, while a four months' fœtus and the placenta were found lying in the abdominal cavity. There was no laceration of the vagina, nor any sign of injury to the mouth of the uterus Dr. Popham, who made the post-mortem examination, declined to give a definite opinion as to whether the rupture had occurred naturally or whether it had been produced by an instrument tearing through the organ. His hesitancy arose from the fact of cases being on record in which rupture of the uterus had occurred during the early months of pregnancy. He stated, however, that no operation for piles had been performed. The result of the inquiry is not satisfactory, inasmuch as a good deal has not been explained. The tissue of the uterus was said to be healthy. The same is said to have been the case in an instance of spontaneous rupture at the fourth month recorded in the "Glasgow Medical Journal."

The Cause of Left-handedness.—We find the following item in the "Independent" It would be well worth while for our anatomists to record their observations on this point: "The cause of right and left-handedness is generally anatomical. Prof. Hyrtl says that in two cases out of 100 the left subclavian artery has its origin before the right, and that in these cases complete left-handedness exists. The blood is ordinarily sent with more force through the right than through the left subclavian artery, thus nourishing the muscles of the right arm more fully. In the rare cases where the internal organs are transposed, the heart being on the right side, there is alsoleft-handedness."—*Medical and Surgical Reporter.*

Does with Horns.—The "American Naturalist" for December records some curious instances of does with fully developed horns. They are generally barren, but one example did produce a fawn. In domestic cattle, where the cow produces twins, one being a male and the other a female, the female calf is very apt to be barren, and its external form to resemble that of the ox. These calves on being slaughtered have been found to be hermaphrodite. It is not at all unusual for old female birds to assume the secondary male character of their species.—*The Academy, January, 1870.*

EDITORIAL.

"TO LIE like statistics" is a familiar phrase, which we think must have had its origin in some such mode of compiling them as that at present adopted by the census takers of the United States. The medical information (?) thus acquired, might fitly be represented by a minus sign plus any amount of error. What can medical men think of instructing census takers—as is now done—to "assure themselves that they understand the difference between these diseases," (apoplexy, epilepsy, and paralysis,) "and that as far as possible the persons reporting them do." Now, the persons reporting them are commonly the members of the family in which the patient has died, and the likelihood of their "understanding the difference," is so exceedingly small that we might almost as well expect an uneducated mountaineer to "understand the difference" between magnetism and electricity. We all know that, although the distinction is well drawn in our books, it is not always easy for the physician in presence of the disease, to determine the exact nature of the case; how then can a census taker, with no other information on the subject than he may have been able to gather from a few moments conversation with some doctor, perhaps but little better informed than himself, be able to arrive at correct conclusions in such cases, without any observation of the patient at all, and only such knowledge of the case as may be derived from the extravagant and often ludicrously absurd statements of the family?

Again— "It is desirable that distinction should be made between acute and chronic bronchitis, acute and chronic

dysentery, acute and chronic rheumatism as causes of death." It is most unquestionably desirable that such distinctions should be made in the preparation of all statistical tables, but with what wonderful accuracy a census-taker would be likely to do it need not be remarked.

"Cerebro-spinal meningitis should not be confounded with either brain or spinal disease." Alas, poor assistant-marshals, to what a task are you committed! Do not the large majority of well qualified physicians approach a differential diagnosis of this kind with extreme diffidence, and a well grounded fear of error? What a fine sympathy should we not then entertain for these unfortunate men who are to make this subtle distinction from facts (??) gathered from a bereaved wife or daughter, not always endowed with the greatest accuracy of observation, fine understanding, or conciseness of statement; statements indeed in which the symptoms of the disease are strangely blended with the history of the many virtues of the dear departed, and the grief of the disconsolate mourner. And what invaluable deductions the scientific theorist will be enabled to make from statistics so compiled. "Typhus, typhoid, and typo-malarial fevers should be carefully distinguished." Assuredly.

"Assistant-marshals will very likely, in the course of enumeration, meet with physicians who will be willing out of public spirit, and professional interest, to glance over the entire list of diseases and correct a defective classification." "If the death has been within his knowlege assigned to a wrong cause, he will indicate the true one." The "public spirit" of physicians is not to be questioned, and assistant marshals have no doubt been able to derive valuable aid from many medical men who feel great "professional interest" in work of this kind. We have ourselves been called on to "glance over the entire list of diseases and correct a defective classification." Fancy us seated at a table with

an assistant marshal by our side and a long list of names running somewhat thus:—John Smith, — ward, — district, — age, — *the chronic disease.* The assistant marshal gravely remarks that he fears that is not sufficiently definite, and wishes to know what the "chronic" is. We respectfully decline to enter into any elaborate explanation, upon the ground that lack of medical knowledge will not enable him to understand, and "correct the defective classification" by suggesting "cerebro-spinal meningitis," carefully distinguishing it from "spinal disease." Next we come upon,—John Brown, — ward, — district, — age, *Dr. N. R. Smith disease.* Fearing death may have here been "assigned to a wrong cause," we suggest "ill health" as a substitute, and feel that we have contributed largely to the advancement of medical science, by so carefully "correcting a defective classification"; at least, no one dare now impugn our "public spirit," or "professional interest." Could anything be more transparently absurd than the idea of setting a physician down to a list of names and diseases for the purpose of correcting errors of classification? and what can possibly result from such statistics but gross error, should any one be so mad as to use them as a basis for scientific deduction?

We trust that journalists will everywhere call attention to the utter uselessness of these tables, lest any writer should ignorantly suppose he has found in them a mine of valuable information, and vitiate much good work by introducing this compilation of nonsensical errors as a foundation for an otherwise goodly theoretical edifice; and that physicians will everywhere decline to aid in correcting a classification which might thereby acquire a fictitious value, and *seem* to be truth, whereas it is really an unmixed evil. The only way in which census-takers could compile valuable statistics of this kind, would be by direct application, to the physician who had had charge of the case, for information of the cause

of death. And even then the utmost care should be taken to omit from classification all cases wherein the attendant entertained any doubt of the nature of the affection. Of what value is a table of doubts?

WE have received from the Library Committee of the Medical and Chirurgical Faculty of Maryland, a circular asking the assistance of the Profession towards increasing the Library, by donations of books, etc. We most cordially second the appeal, and hope that it will meet with a generous response. Having already a considerable nucleus upon which to start, an united effort will soon give us a very respectable collection; many of the books now upon the shelves are rare and valuable. It is a reproach to Baltimore and the State, that we have been so long without a Medical Library. The Committee having the matter in hand deserve great credit for the energy they have displayed.

IT is understood that skilled army surgeons are greatly needed in the Prussian army, and steps are being taken to send them from the different cities of our country. We learn that some have already been sent from New York, Chicago, and St. Louis. In Baltimore, Drs. Arnold, Pape and Morawetz have been appointed a committee to examine and recommend applicants.

THE JOURNAL has been sent regularly to some who have written for specimen copies, and as they have not returned it, it is presumed they wish to be considered subscribers. As we propose sending out bills in the next number, it will facilitate matters if they will remit in P. O. money order, before the next issue.

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ORIGINAL COMMUNICATIONS.

THE DIFFUSION OF DISEASE.

BY T. S. LATIMER, M. D.

THE medical mind is strangely embarrassed as to the manner in which diseases are diffused; that is, as to the way in which particular epidemics arise and extend themselves over large extents of country.

A very common idea is, that most epidemics arise in the east and travel westward, following the course of the sun, but there seems to be no constancy in this respect. In general terms they may be said, as a rule, to originate under favoring conditions of heat, humidity, and filth, and to travel in the direction whither the greatest number of human beings are moving; extending themselves frequently, however, in all directions, and sometimes by a single traveler; sometimes without our being able to trace any communication, appearing to occur spontaneously in many places. Dr. Parkes, in speaking of influenza, says: "It has been

supposed to follow a regular course, which has been believed to be from the high north or northeast to the south and west." * * * "So again it has sometimes (1775) passed from the south to the north of Europe, or from the south or west of a particular country to the north or east. Gluge indeed believed he had discovered, from an examination of the epidemics of the last 300 years, that its course is from west to east." On the other hand, one has but to look at an atlas of diseases to find other epidemics moving in other directions: east, west, north, and south, wherever there is human intercourse, and it is doubtless through this means they most frequently extend themselves, though the subject of contagion is one of the most vexed questions in medicine. Air-borne poisons over large extents of country, and across oceans, seem to be physical impossibilities, though local atmospheric diffusion is readily admitted. It is certainly impossible that gaseous impurities could be borne across oceans without undergoing such infinite dilution as to render them void of effect. It is equally difficult to understand how minute vegetable or animal organisms could move such distances in the face of unfavorable winds. We are thus reduced to one of two conclusions in each case—either that the disease has arisen spontaneously in many places, or has been transported by human beings in their commercial and social intercourse. The spontaneous origin of disease—by which is meant simply independence of communicability—has been endlessly disputed, it seems difficult to understand why. Theoretically, there is no reason why a disease should not recur spontaneously as that it should have once arisen. Yet, while all persons admit the spontaneous origin of such diseases as rheumatism, gout, insanity, epilepsy, and a host of others, many will not admit this of contagious diseases.

It seems only necessary that a disease should be declared contagious, or even be suspected of being diffused in that

way, to occasion the denial of any other mode of its reception. It is to us one of the curiosities of mind. It is not difficult, however, to accumulate evidence in favor of spontaneous origin of generally acknowledged contagious diseases, and we will endeavor to associate the evidence of both, since both are in dispute. Of glanders, Arthur and John Gamge write:

"The intensely contagious nature of the disease is admitted by all writers; nearly all, however, admitting the possibility of the disease originating spontaneously." * * "French writers have all very strenuously maintained the possibility of the spontaneous origin of glanders."

Dr. Harley says: "M. Gendron, after a careful examination of the whole subject of contagion, feels almost sure that typhoid fever, under some circumstances, declares itself at once, and in sufficient numbers, to constitute an epidemic independent of contagion." After still further discussing the subject, Dr. H. adds, "we must therefore conclude that this disease has a spontaneous origin in putrescent matters."

Dr. Flint says: "With respect to certain of the diseases which are communicable, it is probable that they not infrequently orignate otherwise than by contagion or infection. This is true of typhoid, and perhaps also of typhus fever." Again, in speaking of influenza, cholera, &c., he says: "It is altogether probable that the special causes in these and other epidemics are developed in the different sections of country over which their prevalence extends." Of typhoid fever he observes: "That it may be communicated under certain circumstances is certain, and that it frequently or generally originates spontaneously—that is, irrespective of contagion or infection—is perhaps equally certain." Again he speaks of "facts which appear to show conclusively the spontaneous generation of the poison." Of typhus he remarks: "It is, however, difficult to trace all outbreaks of

the disease to contagion, and hence the opinion is generally held that the special cause is sometimes of spontaneous origin. The same thing is said of relapsing fever, whilst the contagiousness of yellow fever is disputed. Numerous experiments to test the communicability of this disease, by inoculation, by swallowing the black-vomit, and by the utmost possible exposure, have lead to negative results. To cite one among many experimental observations, Dawler gives the following account:

"In 1805, Don Cabanellos, a Spaniard, slept a night with his children in beds in the Lazeretto, in which yellow fever victims had died. For submitting the question of contagion to this personal test he was made physician to the Royal Household with an annuity of $1,200. A number of galley slaves who accompanied him had one year's imprisonment remitted. The whole party amounted to fifty, and no one suffered any harm."

It is a little odd to find Dr. Flint denying the spontaneous origin of whooping cough, scarlatina, and small pox, referring the supposed cases to "untraced communication with sources of infection." Might not this, with the same propriety, be said of all other diseases? is it not simply the "untraced communication" that constitutes the evidence of spontaneous origin in all cases? What, then, constitutes the difficulty with the doctor? It certainly can not be mere infrequency of untraced cases in these, as compared with other diseases, in which the admission is made. We know no diseases in which it is so frequently impossible to trace communication with sources of infection as scarlatina and whooping cough. It would almost seem as if the worthy doctor had grown tired of saying yes to the question of spontaneous origin, and had here concluded, for the sake merely of variety, to say no.

Dr. Murchison admits both the contagiousness and probable spontaneous origin of "typhus," "relapsing," and

"pythogenic" fevers, and says "there are certain specific diseases, such as puerperal fever, * * * which few will deny to be sometimes generated de novo, and afterwards propagated by contagion or infection; the spontaneous origin of continued fevers is not more extraordinary." We do not see why in any case it should be thought "extraordinary;" to our mind it would seem "extraordinary" if it did not occur.

Again Dr. George Buchanan, after admitting that many cases of typhus fever occur that "can not be ascertained to have been exposed to any contagion," objects to referring them to spontaneous origin on the ground of "analogy of other specific diseases as to the present production of which by contagion, and contagion alone, there is no question;" mentioning in this connection scarlatina and small-pox, the sources of which are "often as obscure as in the cases of spontaneous typhus cited by this author." (Murchison.) Now we should like very much to know why "there is no question" of contagion in these analogous diseases cited? If many cases occur, as there certainly do, there should be "no question" as to their spontaneous origin; and he himself cites two cases occurring in the same institution "within a few hours of each other, * * * and the most careful inquiry failed to show that either of the boys had had the opportunity of getting the fever by contagion," and thinks that because these cases occurred under, apparently, most favorable hygienic circumstances, they tend to invalidate Dr. Murchison's theory, and so they certainly do, that part of it which undertakes to determine the *particular* mal-hygiene which leads to such origin, but tend rather to confirm the untrammeled doctrine of spontaneous origin.

Cholera, perhaps the most deadly of modern epidemics, seems to be peculiarly independent of circumstances, occurring in all climates, under all conditions of cleanliness and

filth, traveling in all directions—by human aid when available, apparently without it when not, or, if not so, then occurring spontaneously in many places, conveying to the popular mind the almost universal idea of contagion, it yet seems impossible to fix that stigma upon it. Earth, air, and water, the animal, vegetable, and mineral kingdoms, have all been carefully searched in a vain effort to determine its immediate cause. Dr. Edward Goodeve thus writes of it: "Cholera seems to have spread east, south, west and north from its first birth-place in Bengal, which became but the centre of an epidemic area comprising nearly all the world. * * * Neither climate nor season, nor earth nor ocean, seem to have arrested its course or altered its features. It was equally as destructive at St. Petersburg and Moscow as it was in India; as fierce and irresistible among the snows of Russia as in the sunburnt regions of India; as destructive in the vapory districts of Burmah as in the parched provinces of Hindostan." * * * "The opposite states of heat and cold, humidity and dryness, high and low barometric states, have prevailed or been excluded without banishing the disease." In Bombay and Bengal the worst epidemics have prevailed during the hot seasons.

Dr. Lieth, "in his tables of mortality for the three years 1848–52, reports 7,112 deaths from October to March, and 5,110 from April to September."

"Dr. Hugh MacPherson has shown that in Calcutta cholera is always most rife in the hot months." Mr. Glaishner and others record that the greatest violence of the disease was during "the hottest months." "In India there is a considerable amount of it in the cold seasons."

In Europe, during the winter of 1848–49, it prevailed severely, and with great virulence during the winter of 1830–31 in Russia. Sometimes a hurricane will seem to disperse it. Yet it will move in the face of a wind with the

same swiftness as with it. Orton says "it traveled across a great variety of country, from the Nerbudda to Bombay, directly opposed by a strong wind blowing night and day, at the same rate of progress that it passed from Madras to Cape Cormorin with the breeze in its favor." Sandy soils seem to have a greater immunity than clayey soils, and, according to Dr. Farr, it is less fatal on the "primary geological formations" than on others.

It is very oddly limited at times, attacking "one side of a street, a camp, or a town."

According to Dr. Goodeve, "in 1848–49 it attacked one side of a small village in Argyleshire, and confined itself exactly to one side of the town, which consisted only of one main street, * * * though the inhabitants were in constant intercommunication."

Again, speaking of the passage of the "9th Lancers" "up the Ganges in 1842," he says: "When the left wing reached Monghir, although there had been no communication with the shore, cholera broke out in it, and continued with the detachment about twelve days. * * * When the right wing reached Monghir it also was attacked, and lost the disease exactly at the same place the other did."

The rapidity with which it extends itself is sometimes little less than marvellous. The epidemic at Kurrachee burst upon the troops there quartered without a note of warning, in a few hours extending itself to every regiment, whether in "camp or in barracks." In 1832, Dr. Bayly says it extended to "all quarters of Paris in eighteen days, and had been fatal to 7,000 people."

In five days from its appearance in Lord Hastings' camp in 1817, 5,000 persons had died of it.

Dr. Goodeve says: "Although it is probable that cholera spreads by human intercourse, it is indisputable that it originates in places without it being possible to trace any communication with infected persons." In confirmation of

its diffusion by human intercourse, he mentions the "dispersion of the children of the Tooting School" in 1848, attended, as it was, by the death of some of the children, and the introduction of the disease by them into "the establishments into which they were received," "although there was at the time no cholera in the institutions or surrounding neighborhood." He also quotes from the report of Mr. Strachey, "president of the cholera commission, formerly in charge of the hill district of Gurwhal:" "'Many of the first cases were carefully investigated; it appeared to be proved beyond the possibility of a doubt that in many instances cholera had never been heard of in the villages until the arrival of the men from Bhabur, who were the first attacked by it. * * * * There were no other circumstances that could be discovered which appeared to throw even the possibility of doubt upon the fact that cholera was brought by human intercourse into a district which up to that time had been perfectly free from every sign of the disease.'" In evidence of what we would call its spontaneous origin is mentioned "its appearance at St. Kilda, in the western islands of Scotland. * * * This island was cut off from all communication with the mainland, and yet the disease appeared in it suddenly without a trace of importation."

Most medical men in India, who have had the disease under constant observation, observing no greater liability among themselves or the hospital attendants than among others not thus exposed, do not believe it contagious. "The disease seldom spreads from bed to bed in a hospital." Dr. Morehead, a most careful observer, whose observations were "conducted through three epidemics in Bombay, though he carefully refrains from drawing positive conclusions," does not favor the contagiousness of cholera.

"Sir Ranald Martin states that of the five native keepers and washers of clothes of the Calcutta European General

Hospital, who during twenty-five years had kept and washed all the hospital clothing, not one had cholera, nor had those who assisted them. The same may be said of the dressers and sweepers."

The washers of soiled linen at the hospitals in England did not seem to suffer in greater proportion than others in 1849.

The report of the committee of 1861 says: "The medical officers escaped entirely, and the subordinate medical establishments, which in such epidemics may be said almost to live in the hospitals, and the hospital servants, who must have been much more in contact with the sick than the patients were, suffered but slightly; and of thirty men of the 31st Native Infantry, sent daily to attend the sick from the 24th of August, when the epidemic was at its height, not one was attacked."

Again, Dr. Flint says: "It is easy to gather isolated facts to support the doctrine of communicability; but the great majority of those who have most carefully surveyed the facts on all sides and weighed the evidence for and against contagion or infection, have arrived at the conclusion that the spread of the disease is not due to its being communicated from those affected to others."

In the report published by order of the French Government on the epidemic of 1831, it is stated that more than fifty thousand persons were attacked, and of these over eighteen thousand died; yet of these only one hundred and sixty-four were of persons specially exposed, and "these one hundred and sixty-four cases were from over two thousand persons employed in the hospices or civil hospitals either constantly or temporarily.

Again: Of fifty-eight persons employed in the hospitals at St. Petersburg, only one was attacked, and of three hundred and seventy-six thus employed at Moscow only six

had the disease. Dr. Flint thus sums up the evidence in opposition to the doctrine of contagion:

"The epidemic breaks out in a place almost simultaneously in different situations, without any communication of the cases with each other.

"It is diffused too rapidly to be propagated by contagion or infection.

"It runs its career too soon, and leaves too suddenly, for an infectious or contagious disease.

"Efforts to produce the disease experimentally, by the greatest amount of exposure, by inoculation, tasting the excreta, etc., have failed.

"There can be little or no doubt that the special cause may be transported in clothing and other substances, after the manner of fomites; * * * in other words, the disease is *portable*, without being contagious or infectious."

ACCIDENTS OCCURRING TO TWO PATIENTS, BY WHICH, AFTER A CONSIDERABLE INTERVAL, THE EYES OF BOTH WERE LOST (ACCIDENTALLY PUT OUT). IN ONE THE BLINDNESS WAS TOTAL AND PERMANENT; IN THE OTHER GOOD SIGHT WAS REGAINED AFTER AN OPERATION.

BY J. J. CHISOLM, M. D.,
Clinical Professor of Eye and Ear Surgery in the University of Maryland.

MR. F———, in perfect health, thirty-five years of age, consulted me under the following circumstances: When a boy he lost the right eye by injury whilst amusing himself with a bow and arrow, shooting at a mark. He had brought the heel of the arrow on a line with his eye, the better to take sight, when the end of the arrow, escaping from the tense cord, flew backward with violence, perforating the eye, and immediately and permanently destroying sight.

At present the condition of this eye is as follows: size, normal; lower two-thirds of cornea, opaque; upper third, clear, exhibiting a large triangular deficiency of iris, as if from a free iridectomy upwards from pupil to ciliary border. Through this free accidental opening the red fundus is readily visible, but the exposed retina does not exhibit the slightest perception of light.

With a good left eye this gentleman has passed through life until two months since, when he was attacked with facial erysipelas. Whilst under the hallucinations of delirium, an accompaniment of the erysipelatous affection, he tried to commit suicide, which was, however, prevented by the constant watching of friends and the removal of every means of doing himself injury. Lying in bed, thinking how he could rid himself of his imaginary troubles, it occurred to him that he could kill himself by thrusting out his remaining eye. As soon as the plan was conceived it was put into execution, and by a sudden thrust of the index finger sight was instantly put out, and his delirium appeared as speedily to vanish. At the moment he thought that the gas, which was burning brightly in his chamber, had been turned off, and that he had been left in utter darkness. When the surgeon arrived the eye-ball was found to be extensively lacerated and nearly emptied of contents. His present condition is, an eye shrunken to one-half of its normal size, with a starred cicatrix over the front of the globe, and with remnants of cornea as opaque as the contiguous sclerotic. Complete and irremediable blindness is his present and future lot.

W. G. H., a very stout boy of six years of age, was presented for surgical treatment under the following circumstances: When two years of age he thrust the point of a scissors into the right eye, cutting the cornea and iris, and penetrating into the substance of the lens. Traumatic iritis was set up, resulting in the complete obliteration of the

pupil by adhesion to the capsule of the lens. When nearly five years old, he was standing by a carpenter who was driving a nail. Under a glancing stroke of the hammer, the nail flew from the board, and, striking him in the sound (left) eye, perforated cornea, iris and lens. Iritic inflammation also ensued in this eye, resulting in pupilary occlusion. When brought to me he had been quite blind for sixteen months, distinguishing only light from darkness. A double iridectomy was performed with the happiest results, restoring good vision to both eyes.

REPORT OF A CASE OF IDIOPATHIC ABSCESS OF THE LIVER.

BY OSCAR J. COSKERY, M. D.

LEONARD N., aged 27, shoemaker, born in Germany, came to Baltimore when 9 years of age. Father living, 64 years of age. Mother died of dropsy. One sister living—one died at 5th year, and one at 9th year. One brother died at 2d year. He himself has had measles—never had dysentery. In 1865 went from Baltimore to Easton, E. S. of Maryland, where he remained five months, and contracted intermittent fever. Upon return to Baltimore chills ceased, after lasting four months. Shortly afterward went to Martinsburg, West Virginia (a high inland town), where he had another attack, lasting three months. Remained in Martinsburg over three years, and thence went to Kansas City, Mo. Still another attack of chills followed, lasting nearly two months. While in Kansas City had several attacks of diarrhœa, some of which lasted two weeks. Was about five months in Kansas City, and started for Baltimore October 5th, 1869. At Indianapolis, Ind., October 7th, 1869, had an attack of pain in right side under angles of

sixth, seventh, eighth, and ninth ribs. October 15th was cupped over region of liver with temporary benefit. Had taken some pills before admission.

February 1st, 1870, was admitted into St. Joseph's Hospital. First saw him on the 7th. His condition was then the following: Slight emaciation, sallow complexion, pulse ninety, weak, tongue slightly coated, anorexia, bowels acting once in twenty-four hours, stools natural in consistency and color, urine in normal quantity; notices sometimes redness of fluid. He complains of pain referred to region of liver only when sitting or standing. On measurement, found right side of chest over lower ribs one and a quarter inches greater than left. On percussion, liver dullness extending downwards to one inch below lower borders of ribs, upwards to level with fourth rib, and transversely into left hypochondriac region; no perceptible enlargement of spleen; on palpation, I detected rigidity of right rectus abdominis muscle; suffered most acute pain over point of twelfth rib; ordered Nit. Hydrochlor. Acid, Chlor. Potass., and Tinct. Gent. four times a day.

February 17th. No improvement; had not seen him for a couple of days, and found him presenting signs of hectic fever; afternoon shiverings, night sweats, diarrhœa, pulse one hundred, tongue dry, flushed face, a slight blush around former seat of most acute pain; ordered poultice to spot, stopped acid mixture, and gave two grains quinine every two hours, also six ounces brandy in twenty-four hours, beef tea, and plain milk.

February 20th. Slightly better, generally; fluctuation of spot distinct but deep; punctured abscess with trochar, and drew off about three-quarters of pint of thick grumous matter, evidently consisting of broken-down blood and pus; a total absence of smell was noticed, and although the fluid was kept in a vial lightly stoppered for fourteen days, there was not the slightest attempt at putrefactive changes;

the fluid was by heat four-fifths albumen; under microscope could detect nothing but blood and pus globules. Pettenkofer's test did not show coloring matter of bile.

February 21st. Slept moderately well last night; no pain; bowels acted seven times in last twenty-four hours; tongue moist and slightly furred; no night sweat; pulse eighty-nine, full and soft; skin soft and perspiring; no appetite; has been no discharge since canula was withdrawn; on separating edges of opening about two ounces of same fluid as yesterday were discharged.

February 22d. Six watery evacuations in last twenty-four hours; pulse eighty-five, full and compressible; tongue coated; discharged two ounces since yesterday; urine contained quantity of urate of ammonia, but no coloring matter of bile.

23d. Four evacuations since yesterday at 12 M.; pulse one hundred and eight; tongue furred; abscess discharged nearly half a pint.

24th. Pulse one hundred and six; tongue dry and coated; about six ounces discharged, more purulent and offensive; appetite slightly better; during dressing of wound nearly a pint of pure pus escaped.

25th. Tongue still moist and coated; pulse ninety-five, full and soft; five evacuations; to have Argent. Nit. two-thirds grain, Pulv. Opii. one grain every three hours; during last 24 hours about six ounces of pus were discharged.

26th. Pulse one hundred and fourteen; tongue thickly coated, moist; still no appetite; bowels not acted; urine normal; abscesses discharged about half a pint in twenty-four hours; slight discharge of florid blood from edges of wound.

27th. Pulse one hundred and seven; respiration twenty; tongue red and slightly coated; abscess discharged profusely, computed quantity one pint in twenty-four hours; discharge serous; bowels moved five times; to continue pills.

28th. Bowels moved once in twenty-four hours; pulse one hundred; skin cool; tongue clean and pale; slept well; abscess discharged about four ounces.

March 1st. Bowels acted six times notwithstanding pills; tongue clean and tremulous; pulse one hundred and ten; night sweat; abscess discharged about three ounces; change to lead and opium pills.

March 2d. Pulse one hundred and four; tongue clean; had sick stomach last evening; no night sweat; bowels moved twice; abscess discharged about two ounces.

March 3d. Bowels moved four times; night sweat; sickness of stomach continues; to change from egg-nogg, &c., and give eight ounces of brandy plain; slept well; abscess discharged about two ounces; very thick and tenacious pus and some bloody serum; tongue clean; pulse ninety-five, small and weak.

March 4th. Sick stomach continues; tongue clean, red around edges and tip; pulse 118; respiration 20; bowels acted four times; no sleep; no appetite; discharged only about one ounce since yesterday; more bloody serum mixed with pus; slight sloughing commencing around wound; ordered quinine and turpentine.

March 5th. Pulse 117; tongue clean, moist and anæmic; night sweat; bowels moved twice; opening sloughed to three-quarters of an inch in diameter; slight discharge.

March 6th. Night sweat; slept badly; diarrhœa; pulse 116, small and weak; sloughing continues; wound about one inch in diameter.

March 7. Night sweat; slept well; passed about one ounce pus per anum yesterday; tongue clean and moist; pulse, 130; wound still sloughing.

March 8th. Died very quietly at 7 A. M.; no coma; no delirium of any kind; slept very badly last night.

Post-mortem nine hours after death. Subject much emaciated; slight rigor mortis; puncture sloughed to size of

one and a half inches, with two smaller openings near; upon opening abdomen, found liver projecting very little below lower borders of ribs; whole right lobe was adherent to diaphragm; for some inches around abscess a considerable deposit of aplastic lymph connecting that portion of liver with ribs; eleventh rib much necrosed; no sign of former fracture; abscess confined to right lobe and capable of holding about three ounces; the cavity partly filled up with granular aplastic lymph; liver in other portions much congested, and measuring twelve inches transversely by nine longitudinally; calculated weight between six and seven pounds; gall bladder containing about an ounce and a half of bile; could find no connection between liver and intestines; other abdominal viscera were seemingly healthy; there was no sign of peritonitis anywhere except over right lobe of liver.

Remarks.—There are several points of interest connected with this case. Firstly, the development of an idiopathic abscess in this climate. Indeed, Murchison (Dis. of the Liver) calls them tropical abscesses.

Secondly, the absence of any former attack of dysentery. By many the abscesses are thought to be pyæmic deposits from that disease.

Thirdly, the presence of the phenomenon first pointed out by Mr. Twining (Dis. of Bengal), and by him thought to be pathognomonic, the permanent rigidity of the rt. rectus muscle. To what is this due? I do not think to any special nerve influence, but to the involuntary effort of nature to shield an inflamed and sensitive part. This symptom, however, first caused me to suspect abscess.

Fourthly, the quantity of discharge at first puncture and the small size of the cavity after death.

Fifthly, the total absence of putrefactive changes in first discharge, after being kept so long. This disposed me to believe bile present, though there was no response to the test.

Sixthly, the total absence of icterus all through.

Seventhly, the total absence of pain anywhere except immediately over point of puncture, the end of the eleventh rib.

Eighthly, the total absence of coloring matters of bile in discharge and urine (examined several times.) Could the quantity of fœcal discharge have depended upon its excess in that excretion?

Ninthly, the quantity of discharge (90 ounces) during sixteen days subsequent to puncture.

Tenthly, where did the pus discharged by rectum come from? Certainly not from the abscess in the liver.

No farther examination was allowed than is recorded above.

ANATOMICAL AND PHYSIOLOGICAL DIFFERENCES BETWEEN THE CAUCASIAN AND AFRICAN RACES.

By HARVEY L. BYRD, M. D.

Professor of Obstetrics in Washington University of Baltimore; former Professor of Materia Medica and Therapeutics in Savannah Medical College; and late Professor of Principles and Practice of Medicine in Oglethrope Medical College of Georgia, etc.

IN a recent lecture, Professor Agassiz remarked: "I have pointed out over a hundred specific differences between the bonal and nervous systems of the white man and the negro. Indeed, their forms are alike in no particular. There is not a bone in the negro's body that is relatively the same shape, size, articulation, or chemically of the same composition, as that of the white man. The negro's bones contain a far greater percentage of calcareous salts than those of the white man; even the negro's blood is chemically a very different fluid from that which courses in the veins of the white man. The whole physical organism of the negro differs quite as much from the white man's as it does from

that of the chimpanzee—that is, in his bones, muscles, nerves and fibers, the chimpanzee has not much further to progress to become a negro, than a negro has to become a white man. This fact science inexorably demonstrates. * * * * Climate has no more to do with the difference between the white man and the negro, than it has with that between the negro and the chimpanzee; or than it has between the horse and the ass; or the eagle and the owl. Each is a distinct and separate creation. The negro and white man were created as different as the owl and the eagle. They were designed to fill different places in the system of nature. The negro is no more a negro by accident or misfortune, than the owl is the kind of bird he is by accident or misfortune. The negro is no more the white man's brother, than the owl is the sister of the eagle; or the ass is the brother of the horse. How stupendous, and yet how simple is the doctrine, that the Almighty Maker of the Universe has created inherent species of the lower animals, to fill the different places and offices in the grand scenery of nature." ("Medical and Surgical Reporter," vol. 16, page 453). The following skeleton facts, developed during an experience of nearly a quarter of a century, as a physician, in the rice growing region of South Carolina and Georgia, is subjoined for the purpose of presenting a few prominent and highly important physiological and therapeutical differences which exist between the Caucasian and African races. The negro is far less liable to malarial fevers in the rice swamps of the South than the white man under the same circumstances. Instances so frequently repeated as to leave no doubt of the constant operation of the same laws in their production and development, have come under the observation of the writer, confirmatory of this fact, that it would alone go very far toward the establishment, in his mind, of the diversity of origin of the two races, even were other evidences wanting to do so. It was as well known, a few years ago, to the negro as to

the overseer, or proprietor of the rice plantations on the Pee Dee, Waccamaw, Santee and other rivers in the rice region of South Carolina, that the former could lie down and sleep upon the ground in the open night air, even when heated by the fatigues incident to the rice harvest, with perfect immunity, or exemption from miasmatic fever; and that a nap of half an hour, while sitting in the barn-yard superintending the night duties of the harvest, entailed, with almost unfailing certainty, an attack of fever, within *nine* days, on the overseer, or any other white person who might be so unfortunate as to be overtaken by sleep. This occurred, too, where the negro and the white man were natives or long residents of the locality. So constant and universally was this the case, that great effort was made by white men to keep awake while superintending the night duties incident to harvest season. Yet they could sleep in their residences contiguous to the plantations with perfect impunity, for hours, *during the day.*

From June to November, the malarial period, the whites found it necessary to remove from the plantations sufficiently far to place a forest of pine or other large growth between their temporary retreats and the rice swamps, as a matter of *self-preservation*, or, at least, protection against bilious remittent and intermittent fevers; while the negroes remained, during their absence, healthy and happy, increasing and multiplying, as well during the summer and autumn as at any other periods or seasons of the year. The native African enjoyed equal immunity from miasmatic fever with the negro born on the soil. On the visitation of cholera, during the residence of the whites on the plantations, the negro alone was the sufferer, and this, too, whilst the former was humanely and carefully ministering to his wants and necessities. It is due alike to science and to truth to state, that the negroes, on all the plantations that came under my professional care, were well fed on good and wholesome

food, properly clad and shod, not over-worked, and provided with comfortable houses. Again, the negro was almost exempt, during the yellow fever epidemics which proved in so many instances so devastating to the white population in certain cities in the South. His exemption from this disease is often most strikingly manifest during an epidemical visitation. One of the most pleasing episodes in my professional experience in yellow fever, was the kindness and care manifested by the negro for the suffering and dying whites, during an epidemic of that disease. From his almost complete exemption from the disease, and his naturally kind and gentle disposition toward the superior race, he was wont to constitute, in many cases, the sole attendant and nurse for the sick, as well as undertaker and sexton for the dead. The fidelity and kindness thus manifested by him is worthy of the highest praise. Amid thousands of yellow fever patients that received professional attention at my hand, a case of *black vomit* was never seen in a negro. Nor were even the few cases, where the general phenomena of yellow fever presented themselves in the African of full blood, difficult of management or marked by symptoms of more than ordinary gravity. Mulattoes were more liable to be attacked than negroes, and less liable than white persons. The susceptibility is—according to my observation and experience—in direct ratio or relation to the larger proportion of white blood in *mixblooded* persons, during the prevalence of an epidemic of yellow fever. The comparative susceptibility of the white and negro races to several other diseases might be mentioned, and interesting parellel and differential phenomena adduced, did our subject seem to require it for further illustration or support. We observe, however, in passing, that there are many well defined and constant phenomena which, considered physiologically and therapeutically, are not only of great value in a large number of diseases, but which go very

conclusively to prove, to the philosophical observer, that *great natural and original differences and distinctions* exist between the African and Caucasian races. Thus, *cæteris paribus*, an epidemical visitation effecting simultaneously both races, will evince phenomena in the white race of a *sthenic*, and in the negro a more or less *asthenic*, condition will be found. The treatment as well as general symtoms establishing clearly these important facts. In some such seasons, for example, antiphlogistics, and even venesection, has been found the remedy, *par excellence*, in the white race; whilst depletives and arterial sedations were obviously detrimental, and sustaining or even stimulating remedies loudly called for in the African, often in the early stages of disease. These facts are the more important and significant when we remember that such general treatment would have to be reversed, in managing an epidemic among the laboring and the more comfortably circumstanced classes of the *white race.*

Again, the negro in health habitually consumes less oxygen during respiration than the white man. Intelligent physicians will turn this fact to useful account in the professional management of their diseases. Among other evidences of this fact, may be mentioned the constant tendency of the negro to *cover his head and face* when going to sleep, particularly in cool, and even moderately warm weather. Nothing was more common during the winters of the South than to find him at night with his vertex to the fire, and the blanket or other covering drawn closely over the head and face, while the feet and shins were naked and exposed to the cold, and in this condition sleeping soundly and pleasantly.

On a professional visit, late of a winter's night, half a dozen, and occasionaly more, might have been seen with closely covered heads and faces and uncovered feet and legs. The vertex to the fire-place and the feet projecting into the

room—resembling the radii of a semi-circle—and that too, when they were supplied with comfortable sleeping apartments and had sufficient bed covering in another part of the house.

The negro seems to require more carbon for the well being of his organism, and far less oxygen, at least during sleep, than the white man. This fact may be seen in the *universal tendency to cover the face and head*, even in moderately warm weather; and not a few instances have been observed where the face and head were covered before going to sleep, even in midsummer. For many years I have successfully treated the negro quite differently from the course pursued in managing the same disease in the white man, under even almost precisely similar circumstances. He bears full doses of opium and its preparations, for example, less favorably than the white man, and cannot be depleted to the same extent wlthout injury—requiring an earlier resort to stimulants and supporting treatment than the superior race, in the same disease and in precisely similar surroundings. Instances might be multiplied to any desirable extent, and differentialism instituted, to show that while a sufficient number of *symptoms* may occur to enable us to determine the existence of certain diseases common to both races, a large number and even important *signs* may be found that are *peculiar* to each. The inability of the African to withstand the effects of considerably reduced temperature, is well known, and the comfort he derives from hot weather might, if time permitted, be brought out in striking comparison with the white man, and found an additional evidence of the *original diversity* of the races. Nearly three hundred years of residence, association and contact, on this continent, with the white man, have wrought no change in his physical and physiological characteristics; and the inadequacy of *time and circumstances to effect any essential* or even appreciable alteration in his anatomical

structure, at least, is wholly set at rest by the monumental revelations of Egypt. The foregoing and other facts which might be adduced, force the conviction upon our mind, that he was not only cast *originally* in form and color in which he appears to us now, but that he had an existence in the jungles of his native Africa, long ages ere the white man was created in the image of his Maker, or permitted to enjoy the beauty and bliss of an Oriental Paradise.

SELECTED ARTICLES.

TREATMENT OF SYPHILITIC DISEASE.

BY JOHN K. BARTON, M. D. (Dub.) F. R. C. S., &c.,
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THE principles upon which the treatment of syphilitic disease should be conducted, are sufficiently simple, yet, if I may judge from cases which have come under my own observation, they are not as generally recognized, or as universally acted upon, as their importance demands. In these principles I do not include the use of any particular therapeutic agent, but simply the general rules which a knowledge of the natural course of the disease, and of the effects produced by certain medicines on the symptoms, have enabled us to arrive at; these form a safe groundwork upon which to determine the line of special treatment for adoption in any particular case. In the following pages I purpose drawing the readers' attention to these principles, and illustrating their practical utility by cases, in some of which the same remedy (mercury) will be seen to have produced, when given upon a *wrong* principle, aggravation of the symptoms, with great deterioration of the general health, and subsequently, when given upon *right* principles, marked improvement of the general health, and a disappearance of the symptoms.

Before entering upon this subject, I am compelled by some observations made in a recent communication in the pages of this Journal, briefly to refer to the well worn controversy concerning the distinction which exists between the three forms of venereal disease. The conclusion sought to be drawn from some of the cases referred to in this communication is such, as, if adopted, would throw us back into the uncertainty and confusion from which,

thanks to the labors of many independent observers at home and abroad, we have recently emerged. The conclusion to which I refer is thus expressed: "On referring to the accompanying tabulations, it will be seen that, as a rule, all sores, whether soft or hard, were followed by constitutional signs." Upon referring to the tables as directed we find a certain number of cases in which it is stated that characteristic soft sores existed at the time of admission, and in which subsequently syphilitic symptoms became developed.

Admitting the facts to be as stated, and admitting also, which is not, however, at all proved, that in some at least of these cases the syphilitic symptoms which appeared, were not the return of old symptoms, but the first sign of constitutional infection; still the question remains, what proof is there to show that these sores were the initial lesion of the syphilitic symptoms which followed? There is no proof, for there is no mention made of any examination with the speculum to ascertain the possible existence of other sores; nor is there even any careful account of the time which elapsed between the development of the sores, and that of the syphilitic symptoms.

In the absence of all such data there are three ways of explaining the facts recorded in the tables, and it will be admitted we are bound, in endeavouring to explain any phenomena, to adopt the most reasonable and likely, not the most unreasonable and unlikely solution of the difficulty. The *first* explanation which suggests itself at once is, that these "soft sores" had nothing whatever to say to the syphilitic symptoms, being another disease, which prostitutes in the constant habit of promiscuous intercourse, were, to say the least of it, not unlikely to contract, in addition to a syphilitic sore, which they either had not noticed, or, having noticed, considered of no consequence; but which trifling sore was really the initial lesion of the subsequent symptoms. If this explanation be objected to in any instance, the facts before us admit of a second explanation equally satisfactory and probable, and involving no difficulty, which is, that in some cases the "soft sores" were true syphilitic chancres, in which the sign of induration was wanting at the time of observation, for it is well known that *induration*, however valuable a sign when present, is not to be looked upon as absolutely necessary to the syphilitic chancre; and indeed for this reason the names of hard and soft as applied to the infecting and non-infecting sores are very objectionable; but in the tables in which these cases are

given, the sores are simply described as "soft sores," or a "number of soft sores," the other signs of *surface*, *secretion*, &c., being altogether omitted. It seems probable that in some of the cases the former and in others the latter explanation was the true one.

The author of these tables, however, adopts a very different explanation of the simple phenomena there stated, which is—that these "numerous soft sores" were examples of what is commonly called the local venerable sore or chancroid, which, indeed, is very likely; but—strange conclusion—that the secondary syphilitic symptoms followed from them. I have shown that there is not the slightest necessity for any such conclusion, as the cases admit of ready explanation without it; but if adopted we must at once pronounce all the careful and laborious researches which have been made upon this subject, since Bassereau, in 1835, began his observations, up to the present time, to be altogether wrong, and this rather than admit that a certain number of women in the nightly habit of prostitution might have two kinds of venereal disease at the same time.

I leave the reader to adopt whichever of these explanations he thinks most reasonable.

Syphilis in any of its stages may present difficulties of *diagnosis*, but more frequently in its later stages is this the case. The plan generally taken in such cases is to make a minute inquiry into the antecedents of the patient, and the diagnosis is formed very much upon the information thus acquired. This appears to me to be a grave mistake, and one which very often leads the surgeon into error. To found a diagnosis in any case upon the history of his symptoms, as given by the patient, is always dangerous, but much more so in syphilis than in other diseases, for so chronic is the disease and so various the symptoms it produces, that the patient may readily deceive himself and the surgeon consequently who trusts to what he tells him.

Under any circumstances of difficult diagnosis, I am convinced that our efforts should be directed almost exclusively to a careful, and, if necessary, a repeated examination of all the signs, which the skin, nails, hair, mucous-membrane of the mouth and fauces, &c., will present, rather than rest any weight upon the history given by the patients. For obvious reasons some patients will deny the possibility of their having contracted syphilis, while others will uninten-

tianally mislead in the opposite direction. Several cases have come under my observation in which the patients have given a history of primary sores, followed by an eruption, which, upon closer investigation, turned out to be a rash produced by copaiba, or an ordinary skin affection (scabies, exema, or purpura.) On account of this double source of error, I view with suspicion any diagnosis founded upon the previous history. *The signs which we ourselves have an opportunity of observing, are the only reliable grounds of a diagnosis in any difficult case,** and by carefully noticing them we will always be able to come to a definite conclusion, and either confidently enter upon treatment, or on the other hand dismiss the subject of syphilis from our patient's mind.

I have elsewhere† stated my views of the *treatment* of syphilis; these views have been confirmed by more recent experience, while at the same time I am convinced that in order to make a change in the old method of giving mercury rapidly and in large quantities for syphilis, it is necessary to insist upon the principles which should guide us.

The first general rule or principle of treatment which I would suggest, is, that our *object* should be to remove all existing symptoms as completely as possible, *not* to drive out the virus from the system; the virus we only know by its effects, and there is no proof whatever that the virus is directly influenced by any treatment.

There is, however, very good reason to believe that the virus is in a large number of cases really eliminated from the system, after the lapse of a considerable interval of time, during which its presence in lessening activity is seen, and there can be little doubt that by removing the symptoms we indirectly aid in this elimination, so that while we confine onr treatment to the removal of existing symptoms, we are accomplishing, as far as treatment can, the purification of the system; but this must not be the object we propose to ourselves or our patients. When the symptoms have totally disappeared we have no further safe guide; but might, with the theoretic object of freeing the system from the virus, persevere indefinitely to the destruction of the patient's health, and after all be disappointed by finding a new batch of symptoms appearing when his cure was pronounced complete.

* I find other surgeons have adopted a similar rule. Mr. C. Forster says—"For many years I have enjoined my reporters only to note down what they see."—Guy's Hospital Reports, 1870, p. 162.

† Syphilis, &c., Chap. ix., page 200, &c.

Experience, I think, however, shows that while our object must be simply the removal of the symptoms, yet that in order to do this satisfactorily, that is, to prevent, as far as possible, *a return* of the symptoms, we must persevere with treatment for some weeks after all signs of the disease have disappeared; this is not necessary in all cases, but in the majority, especially such as are in the second stage, this is a wise and useful precaution.

The second general principle is, that whatever therapeutic means we employ should be used in a gradual and general manner, in contra-distinction to the active and energetic use of the same drugs. The reason of this is that syphilis is essentially a chronic disease; its symptoms are gradually developed, and continue for a length of time, gradually disappear, and are followed after an interval by another set of symptoms, which pursue a similar course. That a remedy which acts energetically and rapidly upon the system can not successfully combat such a disease requires no argument, and yet such a method of treatment is, in fact, very generally adopted, with the result, as some of the following cases will show, of rendering the disease more intractable, while the health of the patients becomes much deteriorated. The rule that an acute disease requires an active remedy, while a chronic disease will only yield to a slow remedy, is generally accepted. There is no disease with which I am acquainted, in the treatment of which this rule should be more carefully borne in mind than in that of syphilis, not only from the essentially chronic character of the disease, but from the fact of the medicine which possesses the greatest power over its symptoms, and is generally employed in its treatment, being *mercury*, which metal, when introduced into the system in too energetic and rapid a manner, is capable of doing as much harm as, on the other hand, when used in a cautious and discriminating manner, it is powerful for good. There can, I conceive, be no doubt that by means of mercury the effects of the syphilitic poison in the system may be counteracted to a very great extent, the duration and severity of the disease mitigated, and life saved when vital organs are attacked, and yet the non-mercurialist may boast that his cases on the whole get on quite as well, and some of them very much better than those under the care of practitioners who employ mercury. In an average of a large number of cases treated with and without mercury, I believe there would be found no great difference

either in duration or severity of symptoms, and the reason I am convinced is that on the mercurial side the cases which are improved and relieved by mercury judiciously administered are counteracted by those in which it has been used in too active and energetic a manner, so that if this second general principle is not attended to, it would be much better not to give mercury at all.

Salivation should never be induced in the treatment of syphilis; all the good effects of the drug can be obtained without this, the poisonous effect of the metal upon the system. Not only is the patient injured by the depressing effects of mercury when pushed rapidly on to salivation, but the syphilitic symptoms remain unaffected by this active use of the drug. So that it is always a most unfortunate circumstance should a patient become salivated, and one which we should guard against by, in the first place, using mercury, especially at first, very cautiously and in small quantities, and also by examining our patients frequently, for some are very susceptible. The best means of giving mercury so as to fulfil the indication of introducing it gradually into the system, and avoiding salivation, is, I believe, by means of inunction; ten or fifteen grains of mercurial ointment carefully rubbed in daily will do more for the relief of the symptoms than could be credited by those who are accustomed to give it freely by the mouth. Inunction is much the best means to employ in the early stages of the disease, but in the later stages very often it is necessary to give mercury in combination with iodide of potassium, and then either the biniodide or bichloride may be given in doses of the twelfth of a grain, and the metal will then act in the gradual manner required. The following cases prove the importance of due attention being given to this principle of the gradual introduction of the remedy by which we propose to influence the symptoms of syphilis.

CASE I.—*Syphilis in its Second Stage, treated at first by the rapid introduction of Mercury into the system, which, while injuring the patient's health, failed to remove the symptoms—Subsequent gradual treatment, followed by complete removal of the symptoms and restoration of the patient's health.*

J. R., a clerk, came under my observation upon the 3d of December, 1869. He was then profusely salivated; bloody saliva flowed constantly from his mouth night and day; he could with

difficulty swallow even drinks. He was bathed constantly in a cold sweat, his pulse being rapid and weak. The syphilitic symptoms were a papular eruption, well marked on the face, arms, and neck, enlarged cervical glands, pains along both tibiæ, which were worse at night.

He had contracted the disease in August, and the eruption had appeared, he stated, during the following month. He was at this time in the country. The surgeon whom he first consulted gave him "potash," and he thinks a little mercury, when the eruption and other symptoms became somewhat better. He came to Dublin about business, and then consulted a medical man, who prescribed pills for him, one to be taken three times a day, and after a few days, fearing one of his eyes was becoming inflamed, gave one every four hours. At the end of the week salivation was established, with all its attendant evils, while the eruption and other symptoms remained the same as they were before this active treatment was commenced.

When this patient came under my care, the treatment was necessarily entirely directed to the relief of the salivation. Four grains of quinine was given every four hours, while a chlorate of potash gargle was constantly used to wash the mouth; fluid nourishment was given every four hours. In about a fortnight he was recovered so far as to eat solid food; he then left for the country. I saw him again early in January; he had then quite recovered from the debilitating effects of the salivation, and appeared in good general health. *The syphilitic symptoms remained as well marked as before.* I now considered him in a suitable state for treatment, and commenced at once with the inunction of half a drachm of mercurial ointment once daily, a mixture containing three grains of sulphate of quinine in each dose being given twice a day. After a fortnight's steady perseverance in this treatment the eruption was manifestly decreasing; the inunction was then reduced to fifteen grains daily. Upon the 8th of February, after a month's treatment, the following note was taken: "Papules scarcely perceptible on the forehead, where they had been very marked; eruption on arms and back nearly disappeared; the papules which remain are scaly; slight enlargement of cervical glands still on one side; no pains or other symptoms; general health very good; has not been a day from business since he returned to town; no symptoms of saliva-

tion." By the end of March all the symptoms had completely disappeared, and the treatment was discontinued.

CASE II. (Reported by Mr. Arthur Ringland.)—*Syphilis in its Tertiary Stage—Salivation produced upon five different occasions without relief to symptoms—Complete removal of symptoms and restoration of general health by gradual treatment.*

A. P., a widow, about thirty years of age, was admitted under the care of Dr. Barton, into the Adelaide Hospital, upon the 12th November, 1869; her condition was then as follows: An eruption of both dry and ulcerating tubercles was scattered over the body and limbs; one ulcerating patch upon the back and another near the left wrist-joint were each as large as a five shilling piece; the surfaces of these ulcers were covered with a dirty semipurulent discharge, their edges red and everted. Several large white cicatrices marked the situations where similar ulcers had healed. Severe pains were felt in both arms, legs and head; in the latter the intensity was such as to resemble that of severe neuralgia; all these pains were worse at night; the pains along the tibiæ and about the ankles and knees were much increased by standing, so that the patient could scarcely bear to put her feet to the ground. Her hair had fallen to a great extent, and was still falling.

Previous History.—Two years before, her husband had sores on his lip, and she got a similar sore on her upper lip from him; this sore ulcerated, and was followed by a cutaneous eruption, which, commencing on the face and head, spread over the entire body. The throat became very sore about the same time; this was followed by inflammation of both eyes, from the effects of which her sight remains impaired to the present time. When the eruption first appeared she was placed under the influence of mercury and salivated. She was again salivated, when her eyes became inflamed; when these got better the eruption, pains, sore throat, &c., remained; for these she was given mercury again, and subsequently, in the hands of other medical men, she was salivated twice, so that altogether she has been salivated during the past two years five times, and yet she states the symptoms of the disease are as bad now as ever. The patient was emaciated, and had all the appearance of one worn out with loss of sleep, pain, and depraved digestion, and expressed herself as almost despairing of relief.

As the periosteal pains were the most distressing symptoms, and those which deprived her of rest and kept up the irritative fever, her treatment at first consisted in eight grain doses of iodide of potassium, four times in the twenty-four hours, with Dover's powder at bedtime. In about three days there was a decided relief from pain; the mixture was then changed to one containing the twelfth of a grain of biniodide of mercury, and five grains of iodide of potassium in each ounce of decoction of cinchona bark; of this she took one ounce three times a day She was placed on meat diet with some wine; ordered to take a hot-air bath twice a week, and to have the ulcers fumigated with calomel.

Under this treatment the patient steadily improved in every respect, her general health being restored *pari-passu* with the disappearance of all the syphilitic symptoms. The ulcers soon put on a healthy appearance, but their cicatrization was very slow. After all other symptoms had quite disappeared the ulcer on the back and that on the left wrist still remained. After about five weeks of treatment the patient's improvement was so decided as to attract the attention of all who had seen her when first admitted, and to elicit from herself the remark that she never expected to be so well. About the middle of December this patient was attacked with shivering and pain in the right side, which proved to be due to diaphragmatic pleuritis, which soon spread to the lungs, and her life was in imminent danger. The right lung becoming solid without at the same time any expectoration, with the assistance of my colleague, Dr. Little, this serious complication was, however, overcome, and the patient made a good recovery. She left for the Convalescent Home, Stillorgan, upon the 21st of January, the syphilitic symptoms having entirely disappeared, and her general health being better than it had been since she contracted the sore upon her lip two years previously.*

CASE III. (Reported by Mr. Arthur Ringland.)—*Tertiary Signs two years and a half after Infection—Salivation without removal of Symptoms—Great General Cachexia—Symptoms removed, and General Health restored by Treatment without Salivation.*

William De C., nineteen years of age, was admitted into hospital

* This patient presented herself again at the Hospital in March last, and exhibited two ulcers, about the size of a shilling each, upon the scalp. Her health was failing; she had been leading a drunken and irregular life. She was admitted, but when she came to the Hospital in the evening she was so drunk as to make it necessary to cancel her admission.

upon the 18th December, 1869. He presented the following group of symptoms: Tonsils and palate bore the cicatrices of former ulceration, and were still red and inflamed looking. Spots of a dark coppery color were scattered over the face; several cicatrices of rupia existed over the shoulders and back.

Upon the upper and inner part of both legs, near the knees, existed two large ulcers, the one upon the right leg being the largest, and being about the size of a five shilling piece; the edges of these ulcers were not undermined, but the skin around them was of a dark coppery hue; the surfaces were covered with a dirty looking greyish exudation. He complained of nocturnal pains in his head and legs, so severe as to deprive him altogether of sleep. Upon the top of the glans penis existed the cicatrix of an old sore; the glands in both groins were enlarged and indurated; his tongue was white; there was complete loss of appetite; he was emaciated, and his skin had a yellowish dry look.

Previous History.—About two years and a half before his admis sion to hospital he first noticed a single sore upon the glans penis, the mark of which still exists; this was followed shortly by an eruption upon the forehead. He then sought for medical advice; the surgeon whom he consulted cauterized the sore, and subsequently, the eruption having spread all over his body, placed him under the influence of mercury. He became severely salivated, but states that the eruption continued without much change for four months. He now began to drink rather freely, and became infected with gonorrhœa; this was followed by his present symptoms of great general debility, and by the appearance of the syphilitic symptoms which he presented upon admission.

The *treatment* adopted was, internally, eight grain doses of iodide of potassium, with the one-sixteenth of a grain of biniodide of mercury, in an ounce of decoction of cinchona bark, three times a day, a mercurial vapor bath every second day, ten grains of calomel being used each time, the ulcers dressed with charpie soaked in black wash; full diet. For several nights after his admission scarcely any sleep was obtained, but he expressed himself always relieved by the baths, and the ulcers began at once to show a more healthy edge and surface. A steady perseverance in the treatment was, however, soon followed by a gradual improvement in all his symptoms; the eruption disappeared, the ulcers healed, the nocturnal

pains subsided, and at the same time natural sleep and appetite returned; not the slightest symptoms of salivation appeared. The treatment was continued with but slight alteration until the beginning of February, when, being free from all signs of disease and feeling well, he left the hospital. He has been seen occasionally since that time, and he stated he was free from any symptom such as he had suffered from when admitted.

CASE IV. (Reported by Mr. Samuel Knaggs.)—*Tertiary Stage —Cerebral Symptoms—Acute Headache—Loss of Sight—Loss of Memory—Complete Recovery.*

J. C., a respectable married woman, forty-one years of age, applied at the Adelaide Hospital in October, 1868. She then had a gumatous tumor on the thigh; four years previously she had contracted syphilis from her husband, and had ever since been suffering from various symptoms of the disease. She had been for several months in Dr. Stevens' Hospital; when better she went out, but subsequently, when the symptoms returned, she placed herself under Mr. Hamilton's care, who salivated her; still her symptoms continued with short intervals of apparent health. She did not come into hospital at this time, but was treated as an out-patient. Upon January the 4th, 1869, she presented herself with a fresh train of symptoms, and was then admitted. She now complained of intense pain of the head, like a tight band; she compared it herself to a feeling as if a red-hot iron circle was tight round her head; both eye-balls were the seat of acute pain; the sight was very defective; flashes of light and *muscæ volitantes* were constantly before her; light could not be endured. Her memory appears to have been defective previously, but it was at this time much worse; recent occurrences seemed to her to have happened "centuries ago;" cannot remember anything; and says she has "spiritual and temporal delusions." The intense pain continued for more than a week after she was admitted, although every expedient, including large doses of iodide of potassium, was used to relieve her; any effort of mind, such even as the attempt to answer a question, increased the pain. Blisters were applied at the back of the neck and behind the ears, and the twelfth of a grain of biniodide of mercury, with eight grains of iodide of potassium, was taken four times daily.

A slow but steady improvement began after this treatment had been in force about two days—first, the pain began to abate in intensity, then the dread of light diminished, then the flashes and muscæ disappeared, and slowly the memory and capacity of mind returned. She remained about two months in hospital, during the whole of which time she continued taking the medicine. She then went to the Convalescent Home for about six weeks, and took the same medicine at intervals, a week being allowed to pass between each repetition of the bottle; all tendency to a return of her symptoms seeming then to have disappeared, at the end of about three months she discontinued the medicine. I have seen her within the last few weeks, and she tells me she has remained perfectly free from any symptoms of her disease whatever, and is able to support herself, filling the situation of housekeeper, but her memory is treacherous and defective.

Those who oppose all mercurial treatment would find in the early history of each of these cases ample grounds for the support of their views. We can, I think, hardly doubt that had these patients been treated upon a non-mercurial plan, or not treated at all except by hygienic rules, that they would have suffered less, and that the disease would have run a milder course than was the case under the treatment to which they were subjected. The conclusion, however, which the non-mercurialist would draw, viz: that mercury should not be given at all in such cases, does not necessarily follow, for I contend that the evident failure of mercury in these cases was due *not* to the wrong remedy being employed, *but* to the right remedy being wrongly employed, and the proof of this is furnished by the subsequent course which each of these same cases ran, where mercury was properly employed.

In the first case, the papular eruption which had continued, in spite of an active salivation, steadily declined and disappeared under the inunction of fifteen grains of mercurial ointment daily, while the health remained perfect. In the second, an improvement such as caused the patient to say that "she never believed she would be so well," followed the use of the one-sixteenth of a grain of biniodide of mercury, with iodide of potassium, when five salivations and abundance of iodide of potassium alone had entirely failed to give relief

In the third case, six weeks of the same treatment with mercurial

fumigations to the ulcers, sent the patient out of hospital quite free from any symptoms; and in the fourth, in which serious head symptoms existed, similar treatment with counter irritation succeeded not only in restoring the patient, but, having been persevered on for three months, relieved her so much that she remains well after a year has elapsed, having previously been a constant sufferer, although more than once treated by mercury pushed to salivation. I do *not* claim for the mild or gradual method of mercurial treatment which I advocate the power of eliminating the poison so completely from the system that no future symptoms will appear, for I have found that patients treated according to the plan I recommend will frequently show slight symptoms for a year or more. What I do claim for the plan is, that if employed in the early stages of infection, it will remove the symptoms completely, while the patient's health will at the same time improve, and that it will, if pursued for a sufficient length of time, render the future symptoms much milder and of shorter duration than they would otherwise have been.

If the disease is allowed to run its own course, or even if the patient is treated with active mercurialization, the mild mercurial plan cannot be so successfully employed subsequently, but still it remains the best treatment that can be adopted; it will still be able in most cases to restore the patient for a time at least to health, and to render the future recurrence of symptoms milder in their character. The methods which I have found the best in carrying out the mild mercurial treatment are, in the early stages, the daily inunction of from fifteen to thirty grains of mercurial ointment, and, in the later stage, either the inunction of ten grains of the ointment, or the mixture of the biniodide of mercury and iodide of potassium, as employed in the cases I have related; with either I occasionally use fumigation, either general or local, according to the nature of the case

In a certain class of cases, of which the following is an example, fumigation is of much service:

CASE V.—*Tertiary Syphilis—Extensive Ulcers of Integument with Sarcocele—Treatment by Mercurial Vapor Bath.*

W. C., forty years of age, a servant, was admitted into hospital on the 14th December, 1869. About nine years previously he had

contracted a sore, which was followed by an eruption on his skin, since which he had been almost constantly suffering from some symptoms of syphilis. His general health was much deteriorated. The left arm from the elbow to the wrist was the seat of several jagged ulcers, oval in shape, about the size of a five shilling piece each; their surfaces were covered with a fœtid unhealthy pus, their edges raised and livid. Over the skin upon other parts of the body were scattered the indelible cicatrices of ulcerated tubercles. The right testicle was swollen to about six times its natural size, being heavy, firm and painless; the left was atrophied.

Pains along the long bones were felt at night. A few indurated glands were to be found in the groin and in the neck.

The treatment which in this case was successful in relieving the pains, healing the ulcers, and restoring the general health in five weeks, was the calomel bath every second day, assisted by eight grain doses of iodide of potassium, in cinchona bark, three times a day. No impression was, however, made upon the sarcocele, which remained the same, when the patient left the hospital well in all other respects.

In concluding these remarks I would ask—How are the conflicting statements of those who advocate and of those who denounce the use of mercury in syphilis to be accounted for, unless we admit that this medicine may be either useful or injurious according to the manner in which it is used? And again: Why has the external use of mercury been advocated by the most practical and able surgeons as the safest and surest method of treating syphilis, in preference to the easier and readier method of internal administration, unless that it was found by experience that the symptoms yielded more completely and satisfactorily, while the general health remained unaffected by the remedy when employed in this manner? The *gentle* and *gradual* action of mercury was thus gained, while its energetic and poisonous effects were avoided.—*Dublin Quart. Jour. Med. Sci.*

TWO CASES OF DIPHTHERITIC PARALYSIS SIMULATING LOCOMOTOR ATAXIA.

BY THOMAS GRAINGER STEWART, M. D., F. R. C. P.,
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IN the standard works treating of locomotor ataxia, muscular anæsthesia, and diphtheritic paralysis, I find no distinct reference to the occasional occurrence of cases in which there is some difficulty in establishing a diagnosis between the last-named and one of the first two affections. Cases certainly do occur in practice in which such a difficulty exists; and as good examples, I propose to bring under notice the history of two patients who have lately been under my care.

I shall take first the case which occurred more recently, as it was better marked, and more accurately recorded.

On the 4th of December last, John Roxburgh, an engine-stoker, married, and 32 years of age, was admitted to Ward VII. of the Royal Infirmary, complaining of unsteadiness of gait, sore throat, and unfitness for work.

His illness, which had commenced about the middle of September, he ascribed to cold, which he caught on coming into the air after working at the valve of the tender of his engine at a very high temperature. He had formerly enjoyed excellent health, and had never met with any accident. He was a temperate man, of regular habits, and lived in a healthy part of Berwick-on-Tweed. His illness commenced with shiverings, which immediately followed his exposure to cold. A day or two after, he suffered from sore throat, and had to discontinue work. He was attended by a medical man who recommended the application of mustard to the neck, applied caustic to the throat, and gave him some medicine. He had a good deal of pain in the throat, some difficulty in swallowing, and noticed that occasionally, when attempting to swallow fluids, he was seized with what he considered spasms in the throat, and spluttered the fluid from his mouth and nose. He recovered from this attack (of sore throat) in a fortnight, and, though feeling weak, was able to resume his work, and continue at it for three weeks. Being closely examined as to his condition during these weeks, he states that for a couple of days he had a drooping of the right

eyelid, that his companions said he squinted, and that when he had occasion to look at the railway signals, he had to cover his right eye. He felt unsteady in his gait, and when he washed his face he fell forward, unless he supported himself with one hand. He also had a severe pain, which he referred to the left hip-joint, but never had sharp shooting neuralgic pains, a sensation of grasping round the waist or elsewhere, nor of numbness or formication, excepting that for two days in the beginning of his illness he had the last named sensation over some of the dorsal vertebræ. There was no incontinence of urine nor seminal emission. Towards the end of the three weeks, his weakness increased, and his throat symptoms recurred, compelling him to leave his employment. During the few weeks which elapsed between this time and his admission into the Infirmary, no further symptoms occurred, excepting that his voice lost its natural quality for some time, and became treble, like that of a woman.

At the time of his admission, his condition, as recorded by Mr. Evans, one of the clinical clerks of Ward VII., was the following:

Family History.—Good.

General Appearance.—The patient is a tall, healthy-looking man, of sanguine temperament, and ruddy complexion.

Alimentary System.—Teeth and gums natural; tongue furred and moist; secretions of the mouth increased. There is slight ulceration of the tonsils, most marked on the left side; the uvula is œdematous; the parts are not congested. He is unable to swallow solids. On the day of his admission, he could not swallow water. Upon attempting to do so, he was seized with spasms in the throat, which caused it to be spluttered through the mouth and nose, as it had been at the beginning of his illness. Appetite good, and alimentary system otherwise normal.

Circulatory, Respiratory, Integumentary, and Urinary Systems.—Normal.

Nervous System.—Sensibility to touch, heat, and pain, is normal, excepting that it appears diminished in the soles of the feet, for when the patient walks, he feels the ground soft under him like feathers or cotton. The special senses are normal. He walks with a staggering gait, has difficulty in turning round, and if he walks quickly, feels as if about to fall. On shutting his eyes, the difficulty in walking is much increased. On standing with the legs

apart, he feels tolerably steady; but on shutting his eyes, and placing his feet together, he begins to stagger, and would fall if not supported. He grasps objects firmly with both hands, can seize and hold small objects accurately. When lying in bed he can move his legs and feet, and, so far as by careful investigation can be ascertained, he possesses full muscular power. There is no spinal tenderness. Memory and attention normal, and he sleeps well

From these symptoms I was inclined to regard the case as a somewhat anomalous example of locomotor ataxia, or of muscular anæsthesia. At the time I first examined him, the throat symptoms (spluttering, etc.) had disappeared, and he could swallow fluids easily. There was, moreover, no history of diphtheria. He was ordered mustard blisters to the neck, inhalations of steam, and, on account of the affection of the limbs, five minims of liquor strychniæ three times a day. For upwards of a week he appeared to improve slightly, although on one day (the 12th) he again found himself for a short time unable to swallow fluids. The application of galvanism, which was tried on six or seven occasions, he also thought beneficial. On the 27th, however, (more than three weeks after his admission), he became worse; his feet were cold, sensibility to touch and pain were diminished, the limbs were so weak that he could not walk the length of the ward, and his hands and arms were so incapable that he could not button his coat, nor take a good hold of anything, large or small. These symptoms increased in severity, and on the 30th he fell, in attempting to walk. He was ordered nourishing diet, meat for breakfast and dinner, and eggs to tea, with a pint of porter. He was also ordered cod-liver oil, and some days later half a grain of nitrate of silver was added. He was also desired to rest completely, and to be as little out of bed as possible. When lying in bed he could not move his limbs, or did so only with the greatest effort. The æsthesimeter showed that the sensibility of the skin was diminished everywhere, but specially in the legs and forearms,—above all, in the right leg.

In this state it was very apparent that the case was not such as I had supposed it on admission, and when, about the middle of January, some improvement was manifested, the paralysis of motion and sensibility simultaneously diminishing, I suspected that the symptoms might be due to diphtheritic poison; and, on making

inquiry, made out some of the points in connexion with the sore throat, which I have detailed in the commencement of my narrative. I wrote to Dr. Brown, of Berwick-on-Tweed, under whose care he had originally been, inquiring as to the nature of the sore throat, and indicating my reasons for suspecting diphtheria. I received the following satisfactory reply:—

"My dear Sir:— I attended J. Roxburgh for diphtheria some months ago, at least I considered it so, and treated him accordingly. He was some seven days under my care for it. Some time before and a little after I had several cases of the kind occurring in children in the near neighborhood. . . . I have not the slightest doubt you are correct as to its being diphtheria About the time I attended Roxburgh I find, on referring to my book, that I also attended other three adults for the same disease. In none of my cases remaining here has any paralytic affection appeared.

"Believe me, my dear Sir, yours sincerely,

"COLVILLE BROWN."

The nature of the case was thus rendered fully apparent, and the prognosis correspondingly improved. Day by day he has progressed. He grasps objects firmly, and can write as well as ever. Sensibility and motion have gradually returned. He has made a trial trip on his engine with complete success, and walks with perfect steadiness.

On being satisfied as to the nature of the case, I substituted some compound tincture of cardamoms and aqua menthæ piperitæ for the nitrate of silver, evidently without disadvantage to the patient.

About the middle of last June, Mr. M., a medical student, aged 17, consulted me on account of general debility and unsteadiness of gait. The following outline of his case is mainly derived from notes supplied by himself:—

In April, he had a severe attack of ulcerated sore throat, which, though regarded at the time as non-specific, most undoubtedly had been diphtheritic from the character of the symptoms which followed, and from the fact that one of the patient's brothers, living in the same house, had just recovered from diphtheria.

Soon after his recovery, Mr. M. began to suffer from paralysis of the soft palate, indicated by a tendency for the liquid portions of the food to enter the nose; he was also subject to fainting fits on making any unusual exertion. These symptoms, however, soon

disappeared with the improvement in his health, which seemed to be almost completely reinstated, though great weakness still continued.

Along with these symptoms, I should have mentioned, he began to suffer from defective vision, caused by an almost complete paralysis of the circular fibres of the iris, and of the muscles of accommodation. For these he consulted Dr. Argyll Robertson, who prescribed a solution of Calabar bean in glycerine, which speedily effected a cure.

About the middle of June, Mr. M. first experienced a sensation of numbness in the feet and legs, and want of power in the muscles of the lower extremities, rendering it impossible to stand on tiptoe, and extremely difficult to flex the leg and thigh, as, for instance, in going up a stair. These symptoms first appeared, he believes, on his taking a long walk during a botanical excursion.

When he first consulted me, he was quite unable to walk or even stand with his eyes shut, but with his eyes open he could walk tolerably well. His general health was good, excepting that he was anæmic.

I prescribed six minims of liquor strychniæ three times a day, and this seemed to produce partial relief, but as he continued to exert himself, in the endeavor to attend his classes, which necessitated a walk of two miles every day, he soon began to grow worse instead of better, and the numbness and loss of power appeared in the forearm and hand also.

In the beginning of July, Dr. Robertson and I saw him together, and agreed to try him with small doses of nitrate of silver. Mr. M. was obviously unable to continue his studies, and left Edinburgh for Penzance, making the journey, as far as practicable, by sea, so as to avoid the vibration of railway-carriages. The sea voyage produced a marked improvement, which continued to increase in the healthy climate and fresh sea air of Penzance, so that about a week after his arrival there he was able to walk a short distance without the least inconvenience. He then commenced bathing in the open sea, and the effect which this produced was, as he says, almost magical. About a week or so after he began it, the numbness had entirely disappeared, and he was able to walk with his eyes shut, and to stand on tiptoe, and before he left the seaside, after about a month's residence there, he could walk seven or eight

miles, or row for an hour without fatigue. In fact, his health and strength were perfectly reinstated.

At the time that Dr. Robertson and I examined him together, we were greatly struck with the severity of the ataxic symptoms, and these continued to be the most prominent symptoms during the time he was under my observation.

On comparing these cases with the general clinical history of examples of diphtheritic paralysis, certain marked peculiarities cannot fail to attract attention. Permit me, in a few words, to indicate the features of an average case for purposes of comparison.

The first symptoms of paralysis almost always appear two or three weeks after the subsidence of the local affection, and begin gradually to develop themselves while the patient seems to be making a perfect recovery.

The earliest symptom is generally paralysis of the soft palate, manifesting itself by a peculiar nasal tone of voice, and a tendency for liquids to regurgitate through the nostrils. The paralysis next attacks the legs, occasioning an unsteadiness of gait; the arms, interfering with all the finer movements of the hands, and in many cases even occasioning complete suspension of motor power; or the eyes inducing squint, with confused vision or loss of accommodation; or, it may be, of the muscles of the neck and trunk. Sensation is sometimes first affected, sometimes motion, frequently both simultaneously. In certain cases, of which those under consideration afford examples, there is distinct ataxia. Severe pains not unfrequently occur in the joints, and distressing formication is common. The bladder and rectum, though rarely, are occasionally involved. Of all internal organs, the heart is most seriously and frequently affected. Its action becomes tumultuous, but weak, while the pulse is slow. Fainting fits are not uncommon, and death sometimes results from syncope. Anæmic murmurs are often audible in the large vessels.

The symptoms having reached their utmost severity, in a great majority of cases improvement sets in, and recovery becomes soon complete.

The duration is from two to eight months.

As to the frequency of the different symptoms, the following table, from Dr. Maingault's work, ("De la Paralysie Diphtherique," p. 14.,) may afford sufficient evidence.

He found, in ninety cases of diphtheritic paralysis,—

Paralysis of the soft palate,	70	times.
General paralysis,	64	"
Amaurosis,	39	"
Paralysis of legs,	13	"
Strabismus,	10	"
Paralysis of muscles of neck and trunk,	9	"
Loss of sexual excitability,	8	"
Loss of sensibility without paralysis,	8	"
Paralysis of rectum,	6	"
Paralysis of urinary bladder,	4	"

Although, in the cases I have detailed, the ataxic symptoms were by far the most striking, there were some others of which I should like to say a word, viz., the affections of the throat, the voice, the heart, and the eyes.

1. *The Affection of the Throat.*—This, the most common nervous sequel of diphtheria, presented a peculiarity in the case of the engineer, in that it recurred on several occasions, and lasted upon each only a few hours. It appeared first during the diphtheritic attack, recurred a fortnight later, and again on two occasions about the eleventh or twelfth week of the disease.

2. *The Voice.*—There was no trace of nasal twang in either case; but the engineer stated that at one time, for a period of a fortnight, his voice became distinctly treble—a statement which was confirmed by some of his friends. I have found it impossible to suggest a satisfactory explanation of this fact, but have no doubt of its truth.

3. *The Heart.*—The action of this organ was not altered from the healthy condition in the case of the engineer, but the medical student's pulse was always slow and feeble, and on several occasions he had attacks of syncope.

4. *The Eye.*—In both cases there was impairment of vision. The history led me to conclude that at one time the engineer had suffered from partial paralysis of the third pair, as he had been affected with ptosis, and a misdirection of the eyes, accompanied by confused vision. The student suffered from marked paralysis of the ciliary branches of the third pair, inducing a dilated state of the pupil and loss of the power of accommodation. The third pair of nerves is known to be peculiarly liable to diphtheritic par-

alysis, and especially its ciliary branches. The ptosis and squinting I at one time surmised might be early symptoms of true locomotor ataxia.

Lastly, As to the point to which I wish to call special attention —the ataxic symptoms. In the case of the engineer, these appear to have manifested themselves early, for they attracted his attention within about three weeks of the commencement of his illness, and constituted for nearly ten weeks his most prominent symptom. During this time his motor power and cutaneous sensibility were unimpaired. Any physician who considers the symptoms as I have described them, and remembers that there was apparently no history of diphtheria, will perceive how puzzling the case necessarily seemed at this time. In the case of the medical student, the ataxic symptoms were also very prominent, and, in proportion to the whole duration of the disease, were long continued. Both Dr. Robertson and I were struck with the characteristic unsteadiness of his gait.

While it would be scarcely possible for one thoroughly familiar with the disease, or supplied with a history of diphtheria, to fail to distinguish such cases, it seems to me at least as necessary to form rules for differential diagnosis between this form of diphtheritic affection and other ataxic diseases, as it is to give rules for distinguishing those which are commonly dwelt on in the books.

The points which ought to be borne in mind are the following:

1st. The history of sore throat in the diphtheritic affection, contrasting with that of sharp-shooting neuralgic pains and other prodromata in progressive locomotor ataxia.

2d. The existence of throat paralysis indicated by nasal tone of voice and by dysphagia, especially of fluids, occurring only in the diphtheritic.

3d. The dilated pupils and paralysis of accommodation not occurring in any excepting the diphtheritic.

4th. The suddenness with which, after diphtheria, the ataxic symptoms become developed.

5th. The gradual superaddition of paralysis of cutaneous sensibility and of motion,—*Edinburg Medical Journal.*

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

MEDICAL DIAGNOSIS WITH SPECIAL REFERENCE TO PRACTICAL MEDICINE: A GUIDE TO THE KNOWLEDGE AND DISCRIMINATION OF DISEASES. By J. M. Da Costa, M. D., Lecturer on Clinical Medicine and Physician to the Pennsylvania Hospital, etc., etc. Illustrated. Third Edition; Revised. Philadelphia: J. B. Lippincott & Co. 1870.

WHEN we read the advertisements of our medical schools of all the larger cities, and see the strong array of hospitals and infirmaries whose doors are open to the student, and where, we are given to understand, clinical medicine is so thoroughly taught, one might think the work of Dr. Da Costa—"to furnish advanced students and young graduates of medicine with a guide that might be of service to them in their endeavors to discriminate disease"—superfluous. But when we visit the aforesaid hospitals during the College sessions, and observe for ourselves the clinical teaching, where fifty or a hundred students stand grouped around, straining their eyes and necks for a view of the patient, about whose râles and murmurs the professor so learnedly discourses, we begin to doubt whether clinical teaching, as commonly given, is not a delusion and a sham. When we reflect that, probably for the majority of the, class this is all of the practical part of their profession that they will have an opportunity of acquiring until after the receipt of a diploma certifying to their fitness to practise the art of medicine, some feeling of pity for the communities upon whom they are to begin "practice" will obtrude, and even the question arises whether it is wise to send forth graduates having an assurance that they have seen and studied disease at the bedside, when, to all intents and purposes, the Professor might just as well have delivered his remarks over the cadaver or manikin as a bona fide patient.

Reflecting upon these things, we gladly turn to the pages of Dr. Da Costa in the hope of finding a guide that will be of service

when the young practitioner begins to realize the situation, and feel the need of some knowledge of the *art* of medicine.

In the preface to the first edition our author tells us that, in executing his undertaking, "two plans offered themselves: either to describe morbid states in compliance with the usual pathological classification followed in treatises on the practice of medicine, or to group them according to their marked symptoms." We think it fortunate that he chose the latter method, as it has secured for the work a practical character that would otherwise have been wanting. After treating of "some symptoms of general import," our author proceeds to the consideration of the diseases of the different systems and organs, according to his plan of a clinical classification. In many places we find him deviating from the regular order, but generally with good cause, and only sacrificing uniformity of plan to practicability. We have noticed at some length this work of Dr. Da Costa, although aware that it is already widely known and appreciated, because we think it one that should be even more generally read. We note several improvements in the third edition.

E. LL. H.

THE JOURNAL OF THE GYNÆCOLOGICAL SOCIETY OF BOSTON: A MONTHLY JOURNAL DEVOTED TO THE ADVANCEMENT OF THE KNOWLEDGE OF THE DISEASES OF WOMEN. Edited by Winslow Lewis, M. D., Horatio R. Storer, M. D., George H. Bixby, M. D. Vol. II. January to July, 1870. Boston: James Campbell, Publisher, 18 Tremont street.

A REVIEW of a journal must be, as a journal itself is, an odd piece of literary mosaic. Its pages are filled with the odds and ends of thought, gathered from all sources, presented in styles as diverse as its contributors are numerous, with strength and grace of greater or less degree, according as the individual writer may be endowed with these capabilities—all, however, bearing the impress of the editorial mind, if it be strong enough to subdue these often discordant elements into some sort of harmony. The volume before us is a nicely bound book of about four hundred pages, containing much valuable medical information on the subjects to which it is devoted, as, indeed, the names of its editors and of the members of the society of whose proceedings it is a record abundantly guarantee. This undertaking is something of a novelty in medical journalism, confining itself, as it does, to one branch of professional literature. Such an enterprise is one fairly open to criticism, and

no doubt much might be said *pro* and *con*, but it would merely be to repeat the arguments so often urged for and against the practice of specialties, upon which subject several able papers will be found in the volume before us. We can conceive no reason why, if the practice of specialties is admissible, there should not be journals devoted to the exclusive advancement of a particular branch of professional literature; for, though the specialist should not neglect to inform himself of the results of the progress of general medicine, still there should be at hand journals of ready reference to subjects in which he is specially interested. Again: the needy specialist, who does not feel able to subscribe to more than one or two journals, should not be obliged to subscribe to journals in which it will be the exception to find articles upon that subject which has the first claim on his attention.

Gynæcology especially, is a branch of our profession which is but now beginning to be properly investigated, and should supply abundant interesting material for many journals devoted to its advancement; and, as it is a subject that can never be entirely given over to the specialist, such journals should commend themselves to the entire profession.

Some rather whimsical ideas also stray into a work of this kind which may have served a good purpose to relieve the tedium of debate in society at times, when its proceedings waxed somewhat prosy. Thus, Dr. Hawes, of Boston, after giving us a fairly good article on "The Interdependence of Diseases of the Teeth and the Female Pelvic Organs," closes with this bit of moralizing, the pertinency of which it is difficult to see: "I am one of those who do not consider that the organs of reproduction were ever designed for a source of amusement merely, [did anybody else with a grain of sense ever think so?] but for the specific object of replenishing the earth; and I sincerely believe that their abuse is the primary cause of a great part of the disease, contracted or inherited, to which flesh is heir.[!!!] Would that some competent hand would properly treat this subject for the good of a common humanity! It might disgust a Paul or shock a Joseph, but let one exempt from the sins referred to cast the first stone."

The idea, now so openly advocated, that erotomania is to be relieved by sexual intercourse, and so directed by respectable (?) physicians in the case of unmarried females, is one of the foulest

blots that the science of medicine has ever sustained. Dr. Charles E. Allen, of Claremont, N. H., in reporting a case of this kind, remarks: "She has had coitus with *two or three* different persons within the last two or three years, by advice of a certain physician ofthis State, with the idea that it might be her salvation; but it has proved useless, from the fact that those employed could not exert themselves half enough for her satisfaction." Could anything be more disgusting, or any denunciation of such practice be too severe? In the debate on this case no remarks were made denunciatory of this treatment, whilst Dr. Sullivan manifestly approved. Are we to infer that the Society approve such measures? We trust not.

An interesting discussion arose (thirteenth regular meeting) on the report of a case by Dr. Brown of "Tetanus following the Removal of an Intra-Uterine Polypus" by vulsellum forceps. "The removal of these (pieces) was attended with considerable pain and hemorrhage, which was finally stopped." About the eighth day after its removal "symptoms of tetanus set in, which gradually increased in severity until she died," about five days later.

Dr. Lewis wished to know if the tetanic symptoms were referable to the "operation or to the use of a large sponge tent."

Dr. Pinkham referred to a case reported by Dr. Gaillard Thomas, "where tetanus supervened on the second day after the use of a large sponge tent."

Dr. Warner seemed to attach some importance to the patients having been permitted to exercise so soon after the operation.

Dr. Brown thought the tent had more to do with the induction of tetanus than the operation."

Dr. Sullivan spoke of a case of recovery after the use of a "quart of alcohol each day for several consecutive days," and thought the "injection of sulphuric ether per rectum might have been of benefit."

Dr. Storer related a case reported by Dr. Smipson, at that time the only one on record, of "traumatic tetanus following an operation on the unimpregnated uterus." He "was inclined to attach a portion of the causation to the operation, the predisposition to tetanus perhaps having been owing to the use of the tent." (Is not this a misuse of the term predisposition?

An interesting case of "pregnancy mistaken for the menopause"

was reported by Dr. Brown, the error having been due to the following circumstances: Nine years since birth of last child; forty-five years of age, "the time of life when the change might be reasonably expected;" extensive disease of the os and neck; patient had "remained a helpless invalid for three years;" "the cachetic expression of countenance, with pain and offensive discharge," all of which pointed to the "existence of a polypus or fibroid tumor." Certainly a very natural error in diagnosis until "miscarriage" resolved the difficulty. But we must pass hastily over the many interesting cases reported with remarks thereon, to the able lecture of Dr. Storer on the "Treatment of the Surgical Diseases of Women," only pausing to add that at the fourteenth regular meeting Dr. Bixby, to whom the pathological specimens in Dr. Brown's tetanic case had been referred for examination, reported the "whole lining membrane of the uterus in a highly inflamed and suppurative condition." Dr. Bixby also referred to a paper by Prof. Bilroth, of Vienna, in which it was contended that "tetanus was not an affection of the nerves, but a blood disease or septic poisoning."

Dr. Storer spoke of the necessity for understanding the principles involved in all operations of abdominal surgery as being greater even than in general surgery; and of the greater responsibility attaching to such operations since they were generally operations of "election rather than necessity;" and of the necessity for exercising special care in preparing the patient by a "careful general regimen, by depuration of the blood and its enrichment" for weeks or even months before operating; and especially of accustoming the patient to the bed for a day or two so as to anticipate the "ephemeral bed-fever sure to follow an operation;" of equalizing the circulation by heat to the capillaries instead of diffusible stimulants as a provision against shock; and of the superiority to ether of chloroform, owing to its "less liability to cause nausea and retching," which were so fatal as causing secondary hemorrhage, and as keeping up or increasing general exhaustion.

In all pelvic operations great danger is incurred from shock, hemorrhage, peritonitis, exhaustion, or secondary collapse, septicæmia.

Shock, he thought, might be due to the anæsthetic, even though ether was used; to the entrance of air into an open vein; to the

application of remedies to the interior of the uterus, owing to its "relations to the sympathetic system;" to the compression of nerves in removing an inverted uterus, though little or no blood be lost; or, even by the lifting of an abdominal tumor from its bed, owing to the change in the nerves induced by long continued pressure, and that either might be a cause of death.

Hemorrhage also offered a thoughtful field of investigation. "There was, he was accustomed to teach, little excuse for deaths from primary hemorrhage during an operation, in subjects not already exhausted, nor congenitally hemorrhagic, nor with tissues disorganized by malignant disease. And yet such instances of sad misadventure often occur, owing often to forgetfulness of the peculiar action of the ecraseur in drawing into its grasp outlying vessels, whose escaping extremities retract, and of the fact that a scalpel invites hemorrhage, while scissors, to a certain extent, prevent."

Dr. Storer has entirely discarded organic ligatures, substituting therefor silver wire or acupressure. We can not help thinking that Dr. S. exaggerates the danger from ligatures of silk, and feel as if an old friend had been struck a foul blow when we see it ranked "foremost in inducing secondary hemorrhages," and can not but think it much maligned when spoken of as "predisposing to, and invoking irritation, inflammation, and septicæmia," except perhaps the two former in an inconsiderable degree, and in rare instances.

Dr. S. refers to the habit formerly very common, and still not infrequently practiced, of starving patients after operations until nearly moribund, and then plying them to an unnatural degree with food and stimulants, when the powers of absorption and assimilation were incompetent to do a tithe of the work required of them, and when after all, the condition was rather "one of toxæmia than of anæmia, and the beneficial effect of agents like the muriate of iron, and terebinthinates was not so much from toning the nervous system, or giving stimulus or an increase of hæmatin to the blood, as from an increased action induced of the kidney, and a corresponding efflux from the circulation of all poisonous or abnormally retained material."

Peritonitis he considers but the local expression of a constitutional taint identical and intercommunicable with puerperal fever and erysipelas, having well-marked "laws of causation, increment, and, to a certain extent, of prevention."

Dr. Storer speaks with just severity of the danger incurred by the careless thoughtlessness, or, worse, of surgeons. Let us hope that such cases as those he speaks of are of very infrequent occurrence. None such have ever come under our observation. "He had repeatedly seen whole bunches of intestine escaping from the abdominal cavity, hastily gathered up and packed back like so much straw, without the slightest attention to the chance of strangulation from twisting of the loops upon each other, and he had no doubt that this also was a frequent, though unrecognized, cause of death. It was unnecessary, it would seem, to allude to cases, of which there were unfortunately several on record, where sponges and bits of flannel had been carelessly left within the abdomen, causing death; but he had seen, more than once, surgeons of repute using among the intestines bits of sponge, fresh from sale, which were still filled with the loose augular bits of calcareous concretion that they had brought from their beds at the bottom of the sea."

In cases of severe pelvic inflamation, he advises the unhesitating reopening of the abdomen, and the use, if necessary, after discharging the products of inflammation, of topical application, such as a "weak solution of carbolic acid, or a simple stream of tepid water."

Of septicæmia, he says it is in many cases due to the carelessness and bad management of the surgeon in charge, enumerating among its causes organic ligatures, the careless way in which "the contents of ovarian cysts were permitted to escape into the peritoneal cavity, and the slovenly manner in which these and coagula were but attempted to be removed," to the removal of vaginal and uterine polypi by ligature, and the "equally reprehensible fashion of neglecting to diagnosticate the presence of a collection of pus, and, having discovered it, to await for its spontaneous discharge."

Errors of diagnosis are frequent, and, in many instances, deeply culpable, such as opening the abdomen for supposed tumor, and finding none present. "It had been opened more than once in his neighborhood, and that not long since, to disclose only a pregnant uterus, and in a late case in this State, only to reveal pelvic cellulitis;" puncturing the bladder for supposed ovarian cyst or for ascites; killing the fœtus in utero with a trocar; tapping hernial sacs for abscesses; closing vesico vaginal fistula with an impervious urethra, not to mention sins of omission. In very shame we stay the enumeration. Oh! surgeons, where can you hide your

blushing faces? What charitable mountain fell upon that unfortunate who opened an abdomen to disclose a pregnant uterus? Is surgery, then, "a huge imposture and bottomless inanity, thatched over with bright cloth and other ingenious devices?" Dare we shoot arrows of ridicule at this unfortunate? shall we set him up as a target, that he may so expiate the offenses of this branch of the profession? Rather, I think, we shall say, somewhat mournfully, as Carlyle said of the "Champion of England:" "Him we have left to his destiny; but whom else have we found? From this, the highest apex of things, downwards through all strata and breadths, how many fully awakened realities have we fallen in with; alas! on the contrary, what troops and populations of phantasms, not God-veracities but devil-falsities, down to the very lowest stratum."

Still, that we have among us men to discern these "devil-falsities," and point us to the truth, inspires within us a "true heart of hope" that in the no distant future such things will be classed with "dead past," and that not only surgery, but all who call themselves surgeons, may stand erect with the consciousness of duty thoroughly understood and well performed.

There are many other things in this interesting volume to which we should like to invite attention, but time and space forbid, and we can only in closing quote a few lines from the annual address of the aged President of the society, pointing out some of the obstacles to more rapid progress in our profession:

"Alas, for poor human nature! and alas, too, that the petty motives that sway toward the bad, as well as toward the good, all mankind, should be found to prevail even among medical men! An ultra-conservatism, with its bad logic, and its worse selfishness; a dislike to acknowledge that the golden age is before, rather than behind, us; a disinclination to accept from mere boys, as we older men are but too apt to consider them, the priceless treasures that they offer us from the mines of their hard acquired knowledge; the fear of ridicule by our fellows; and, still worse, the determination not to confess that we have been all the time in the wrong. These are the grounds upon which so many of us still allow our most interesting patients to linger in hopeless and most poignant suffering, however patiently, or to perish from causes, not to detect and remove which it is simply cruel, abominable, infamous." T. S. L.

THE INDIGESTIONS; OR, DISEASES OF THE DIGESTIVE ORGANS FUNCTIONALLY TREATED. By Thomas King Chambers, Honorary Physician to H. R. H. the Prince of Wales, etc., etc. Third American Edition; Revised. Philadelphia: Henry C. Lea. 1870.

We presume this work of Dr. Chambers is pretty well known to the profession, in former editions. The present volume has been prepared specially for our own country, and contains several improvements on the preceding. The work is composed of some three hundred and fifty cases, bearing more or less upon the subject of dyspepsia, with running comments of the author upon the peculiarities of each. It is, in fact, the note-book of a busy physician, who yet found time to jot down the results of his daily observations, and now gives it to the profession with the contents classified and reviewed in the light of a more mature experience. Fault has been found that many cases of no special importance encumber the work, and we cannot but think the criticism just, in spite of the author's protest that every case must have interest if properly viewed. In many places we think Dr. Chambers draws inferences not warranted by the facts of the case, and dwells too exclusively on his pet hobby of "deficiency of life." The work, however, will always be read with interest and profit, as bearing the fruits of a keen observation, in a largely extended practice.

HALF-YEARLY COMPENDIUM OF MEDICAL SCIENCE: A SYNOPSIS OF THE AMERICAN AND FOREIGN LITERATURE OF MEDICINE, SURGERY, AND THE COLLATERAL SCIENCES FOR SIX MONTHS. Edited by S. W. Butler, M. D., D. G. Brinton, M. D., and G. H. Napheys, M. D. Part VI, July, 1870. Philadelphia: S. W. Butler, M. D. 1870.

In looking over the contents of this volume we are impressed with the labor it has evidently cost the editors, and the good taste they have shown in the selection and arrangement of their material. It gives an admirable summary of current literature, and fully deserves the support of the profession.

MISCELLANEOUS.

The Microscopic Morbid Appearances Met with in the Brains of the Insane.—Drs. Tuke and Rutherford, in the October number of the "Edinburgh Medical Journal," have published some careful observations of the morbid appearances presented by the brains of thirty insane persons. All the brains examined were those of patients who had been the subjects of chronic insanity. The forms of disease under which they had labored were general paralysis, dementia with paralysis, chronic dementia, epileptic insanity. The autopsies were made within thirty-six hours after death. The specimens of nervous matter were immersed in spirit, and afterward in a solution of chromic acid. The sections were colored with ammoniacal solution of carmine, rendered transparent by spirit of turpentine, and set up in Canada balsam of glycerine. The parts of the brain examined were the tips of the frontal and occipital lobes, the convolutions on either side of the fissure of Rolando near the vertex, corpora striata, optic thalami, cerebellum, pons Varolii, medulla oblongata, and any portion which was manifestly the seat of the disease. In every case marked departure from healthy structure was observed. The morbid appearances noted were as follows: 1. Gray degeneration or sclerosis. This lesion has been observed by the authors in the white matter of the corpus striatum; in that of the cerebrum and cerebellum; in that of the pons and medulla oblongata. It was found in eighteen instances; in nine of chronic dementia, in three of chronic mania, in three of general paralysis, and in three of epileptic insanity. This lesion the authors have observed in the white matter only. They agree with Rokitansky in regarding it as primarily a modification of the connective tissue or neuroglia, viz: fibrillation and increase of the neurogliar matrix, together with proliferation of its nuclei. The nerve tubes in the diseased tracts *appear* to undergo

atrophy. The authors have seen no evidence of the production of fatty particles from the wasted tubes in the brain. Colloid bodies sometimes appear in degenerated tracts, but not frequently. 2. Miliary sclerosis. Semi-opaque whitish spots, resembling very small millet seeds; they vary in size from one-fortieth of an inch downwards, and are almost confined to white nerve-matter. They consist of semi-opaque molecular material, lying amid a few exceedingly delicate colorless fibres. This lesion is due to the formation of cell-like masses of molecular material, in each of which a nucleus is sometimes discernible. By these bodies the nerve-tubes and blood-vessels are pushed aside, and may be seen curving round the diseased tracts. The authors suppose that these bodies originate in the nuclei of the neuroglia, not by proliferation, but by the transformation of a single nucleus into a cell-like body. This change they have observed in the white matter of the convolutions in four cases, in one in the white matter of the cerebellum. 3. Holes in the white matter of the brain, varying from one-fiftieth of an inch downwards. The authors have met them most frequently in the corpus striatum, but also in the pons Varolii, and in the white matter of the convolutions. The holes have ragged edges, owing to the abrupt termination of nerve elements at their margins. The authors are uncertain as to their nature. Unlike those recently described by Lockhart Clarke, they have no apparent connection with blood-vessels. 4. Changes in nerve-cells. Atrophy of the pyramidal cells of the convolutions of the vertex was observed in three cases. They had shrunk to one-eighth of their normal size. Pigmentary degeneration of nerve cells was frequently observed in the pyramidal and other cells of the cerebral convolutions, in the cells of the corpora striata and the corpora dentata of both cerebellum and medulla oblongata. For this change the authors suggest the name *fuscous degeneration*. 5. Changes in nerve-tubes. Atrophy of nerve-tubes was frequently observed. Pigmentary degeneration of the nerve-tubes of the anterior and posterior roots of the spinal nerves was observed in a case of chronic dementia complicated with chorea. 6. Changes in blood-vessels. Fatty degeneration of the vessels of the pia mater and cerebrum was frequently observed. In general paralysis, tortuosity, and aneurismal dilatation of the capillaries; on the walls proliferation of neuroglia cells and deposits of hæmatoidin were not unusual. In a

case of paralytic dementia there was marked dilitation of the perivascular canals. 7. Granulations of the lining membranes of the ventricles and of the pia mater of the parietal and occipital lobes, and of the medulla oblongata, were observed in many cases of general paralysis, and old-standing mania and dementia. They were the result of changed epithelium. 8. Amyloid and colloid bodies were seldom absent from the brains of old-standing cases. The former readily colored with carmine not exceeding twice the size of the human blood corpuscle, the latter much larger and unaffected by carmine. The names amyloid and colloid are applied without reference to theory to distinguish them. "Virchow holds that one or other or both of these bodies are normal, or at least the result of natural decay. But the fact that they are more common in the brains of the insane than the sane, and the immense numbers in which they occur, suggest that they are actual morbid products." 9. Changes in nuclei of neuroglia. In some cases the number seemed diminished; proliferation, however, was more common. The authors do not regard the morbid appearances they have enumerated as the cause of insanity. They think it more likely they are the result of weakened or perverted evolution of the nerve plasm. Nor do they regard these lesions as confined to cases of mental insanity, for they are well aware that certain of these morbid appearances occur in subjects where the insanity has only affected the muscles, and where the mental faculties have remained unimpaired.—*Half-Yearly Abstract.*

On the Reproduction and Reunion of Divided Tendons.—From the researches of M. Demarquay it results that neither the blood, nor the plastic lymp, nor the blastema, which have been in succession invoked as elements of reparation, play the part that has been attributed to them.

From these researches the following conclusions have been derived:—

1. That the tendon is regenerated by the proliferation of the elements which are found on the internal surface of the sheath of the divided tendon, the two ends of which are retracted.

2. That the external portion of the sheath remains perfectly indifferent during this phenomenon, except it be that the vessels

which it supports become more voluminous and increase in number.

3. That the proliferation which takes place on the internal surface of the sheath takes place at the expense of the cellular elements of this part, which at the end of the eighth or tenth day become confounded with the cellular elements springing from the extremity of the divided tendon.

4. That the regeneration of the tendon is so much the more rapid as the sheath of the divided tendon is more vascular; in fact, whilst the tendo Archillis is repaired by the twentieth or twenty-fifth day, the ligamentum patellæ requires a more considerable time.

That the phenomenon which constitutes the reproduction of tendon is, in all points, conformable to that which takes place in the reproduction of bone from periosteum, a phenomenon which has been well studied by MM. Fleurens, Ollier, and Sedillot.—*Half-Yearly Abstract of the Medical Sciences.*

Physiology of the Blood.—In a recent paper by. M. Savotti, in the "Centralblatt," he describes a phenomenon of great interest, and hitherto unobserved—the entrance of entire pigment-cells into the channels of the capillaries and smaller veins of the web of the frog's foot through their walls. This is the converse process to that exit of white corpuscles of the blood through the walls of the blood-vessels which has attracted much attention, and as to which the researches have been brought under the notice of our readers. M. Savotti uses a dilute solution of sulphuric acid—two per cent. The cells contract and become aggregated around the minute vessels. Then, putting forth processes, one pierces the wall of the vessel and enters its cavity. The whole cell sometimes is slowly drawn in, and after remaining adherent for a time to the wall of the vessel, gradually moves onward with the current of blood. The observation is one of great physiological and pathological interest. It will of course require verification.—*Brit. Med. Jour.*

Possible Duration of Pregnancy.—In the course of an action for damages for the seduction of a young woman, the question of the possibly protracted duration of gestation was raised. The alleged father had had no access to the mother of the child later than 301

days before its birth, and he naturally disputed his liability. Dr. Tanner deposed that the ordinary period was 270 to 280 days, but might be exceeded by two, three, or even four weeks He thought there was no inconsistency in the present case (from April 15th to February 9th—that is, 301 days.) He had not known any case himself in which the ordinary period had been exceeded by a week, but he had no doubt there were such cases. He had heard of such. Mr. James F. Clarke deposed that there were cases on record extending over more than 301 days. Sir James Simpson had recorded a case of 310 days. Dr. Barnes deposed that the ordinary period was 271 days. He had known cases of 280 and of 285 days. He thought it very improbable, but did not like to say it was impossible, for gestation to extend over 301 days.. It was so improbable that he did not believe it. Dr. Tyler Smith said that the longest period of excess he had known was a fortnight. Dr. Reid—a most acute observer—had recorded forty-three cases of protraction, the longest of which was 300 days. Dr. Smith considered that case as reliable as any doubtful case could be. The verdict was for the plaintiff; damages £300.—*British Medical Journal.*

Amputation of the Ankle-Joint.—Stephen Smith, M. D., of New York, in the "Physician and Pharmaceutist," reports two successful cases of this operation, and remarks that amputation at the ankle-joint has not received that consideration from surgeons in this country which its real merits deserve. Unless the conditions are entirely favorable for a Syme's or a Pirogoff's operation, we too frequently amputate above the joint. The great value of the operations bearing these distinguished surgeon's names, does not lie in the peculiarity of the flaps, but in the fact that by disarticulation the stump has for its base the broad extremity of the articular surface of the tibia. This bone, whether covered by the integuments of the heel, or sides of the ankle, or dorsum of the foot, or united to a fragment of the os calcis, is adapted to direct pressure in locomotion. In this fact alone we have the intrinsic merit of ankle-joint amputations. It should be a fixed principle in surgical practice, therefore, that whenever the integuments in the vicinity of the ankle-joint can be so shaped as to cover the end of the bone, amputation must be performed at, rather than above, the joint.—*Half-Yearly Compend.*

EDITORIAL.

THE meetings of the Maryland State Faculty and of the Baltimore Societies, having been suspended during the summer months, are about being resumed, and, judging from their success in the past year, bid fair to be largely attended and of an interesting character.

The value of these associations has never been justly appreciated with us; and their capacities for good—if the coöperation of the profession generally could be enlisted, instead of the small number who now support them—are beyond computation. Even if nothing else were gained than the communication of that experience which every one actively engaged in practice must accumulate, and which otherwise would be lost to the profession, enough would be done to more than justify the time and labor expended. Theories are born and die; systems and doctrines have their day and pass; but facts live alway, and sooner or later, if duly recorded, will find their place in the more developed science of the morrow. It is sad to think of the buried treasures which many who have lived and worked amongst us have carried with them, and which ought to have been left as a heritage to those who come after. In the last ten years there have passed from our midst several whose lives were devoted to unceasing labor, whose experience and wisdom might still be with us, but who have left nothing but the memory of their names and fruitless toil. If ever practical medicine is to become positive and definite, we must look to these workers for the materials of its structure, rather than to

those theorists who are constantly befogging us from the misty evolutions of their own fancies.

Two or three hours in each two weeks can surely be spared by even the busiest of our practitioners, and we opine there are few who could not derive benefit in listening to the cases related by their fellows, and the remarks and criticisms evoked, if there be any, they should feel themselves bound to impart to their less fortunate brethren some of the wisdom of which they are the possessors. One cause of our societies being so poorly attended is to be found in the defective organization and order of business. Too much time is consumed in the useless discussion of theories. The work should be all strictly practical, and every digression upon subjects of a contrary nature at once checked. We must admit it can be of little interest, and still less profit, to listen to the crude opinions and speculations of which we are too often made the unwilling victims. There is a place for all things, and a medical society is not intended as a debating club for the display of disputatious talent.

On the 20th of April last the Medical and Chirurgical Faculty of Maryland entered upon a new career, which we have reason to hope may prove one of enduring prosperity. Its next meeting is to be held in Cumberland, on the second Tuesday in September, and it is most desirable that the attendance should be such as to insure its character as the representative convention of our State. The objects of this body, as we understand them, are three:

1st. The general supervision of all matters pertaining to the welfare of the profession in Maryland.

2d. The advancement of scientific knowledge—the appropriate work of the sections.

3d. The cultivation of social and friendly relations between its members.

It is surprising that a body of men engaged in the same pursuit, with interests so identified, having so much to con-

tend with in ignorance and empiricism, and, withal, so powerful as to numbers, talent, and social position, should yet have so little weight and influence, as a profession, with the community. With proper organization there is no point they might not carry—in directing public opinion in all matters pertaining to their science, in enforcing hygienic and sanitary regulations, suppressing abortionists and the shameless empiricism that preys upon certain classes as its victims. Not only should these subjects engage the earnest attention of the Faculty, but it must give some heed to the delinquences of its own members; it constitutes the high court of the profession; it must be a defence and a shield to the weak against the strong. Simply by the weight of its existence it must prove a powerful check and barrier to those unscrupulous persons who, under its own banner, seek to plunder alike the public and the profession. Above all things it must keep itself free from all personal and party influence, guard itself scrupulously against all attempts to make it the instrument of private ambitions or jealousies. The bane of all American institutions, the curse of republicanism, is the facility with which demagogues bend everything to their purposes, and from this there is but one escape—the *whole* profession must support the meetings; they must be in fact, as in name, Representative Conventions. The late meeting of the American Medical Association offers a sad example of the passions and ambitions of the few, bringing discredit upon the whole. If the profession of the United States had been truly represented in Washington, such proceedings as were held in May last, could never have been recorded.

The scientific work of the Faculty will be chiefly in the sections; several of them have been fully organized and at work during the summer, and we trust will give a good account of themselves.

Not the least in importance is the social feature of the Faculty. Meeting face to face, if only twice in the year, will

necessarily create and foster kindly feeling and sympathy, make us more tolerant and charitable, and lessen the jealousies and rivalries too common to our calling.

It will be our aim, during the coming winter, to make known to the profession generally, through our columns, all of interest that may be accomplished in our different societies. We propose to regularly chronicle their proceedings, and look to them for many valuable papers. We certainly have a right to expect that the profession of such a State as Maryland should do more than furnish material for two medical journals. If, with two medical schools, with their hospitals, infirmaries and dispensaries, with a thousand physicians, nothing can be done to advance our science, it will be well to proclaim at once, that medicine is but a trade, its great aim to make money, its most successful practitioners mere routinists.

DRS. T. C. Maddux, John Morris, and J. J. Cockrill were appointed a committee at the Annual Convention to arrange with the Baltimore and Ohio Railroad for the transportation of members of the Medical and Chirurgical Faculty to Cumberland. We have not learned of any action being taken as yet by the committee, but have assurances that arrangements will be effected in due time. All who propose attending the Cumberland meeting will do well to see one of the committee before securing tickets.

THE health of Baltimore this summer has been most satisfactory. Great credit is due the Health Commissioners, Drs. Taylor and Hank, for the admirable and energetic management of their department.

WE learn that the prospects for large classes at the University of Maryland, the Washington Medical College, and the Baltimore College of Dental Surgery are very flattering.

WE have received the prospectus of "The Medical Times," a Semi-Weekly Journal of Medical and Surgical Science, to be published in Philadelphia by Messrs. J. B. Lippincott & Co. We are not informed as to the editorial staff of the new journal, but, from the well-known liberality of the publishers, anticipate a valuable addition to our exchange list.

BOOKS, PAMPHLETS, ETC., RECEIVED.

From the publishers:

MEDICAL DIAGNOSIS WITH SPECIAL REFERENCE TO PRACTICAL MEDICINE. A guide to the knowledge and discrimination of diseases. By J. M. Da Costa, M. D., Lecturer, etc. Illustrated. Third Edition, revised. Philadelphia: J. B. Lippincott & Co., 1870. For sale by Jas. S. Waters, Baltimore.

THE PRACTICE OF MEDICINE. By Thomas Hawkes Tanner, M. D., F. L. S., etc. Fifth American, from the Sixth London Edition: enlarged and thoroughly revised. Philadelphia: Lindsay & Blakiston. 1870. For sale by Cushing & Bailey, Baltimore. $6.00.

A GUIDE TO THE EXAMINATION OF THE URINE. FOR THE PRACTITIONER AND STUDENT. By J. Wickham Legg. M. D. Second Edition. Philadelphia: Lindsay & Blakiston. 1870. For sale by Cushing & Bailey, Balto. 75 cents.

HALF-YEARLY COMPENDIUM OF MEDICAL SCIENCE: A synopsis of the American and Foreign Literature of Medicine, Surgery and Collateral Sciences, for Six Months. Edited by S. W. Butler, M. D., D. G. Brinton, M. D., and G. H. Napheys, M. D. Part VI. July, 1870. Philadelphia: S. W. Butler, M. D 1870.

THE JOURNAL OF THE GYNÆCOLOGICAL SOCIETY OF BOSTON: A Monthly Journal devoted to the advancement of the knowledge of the diseases of Women. Edited by Winslow Lewis, M. D., Horatio R. Storer, M. D., George H. Bixby, M. D. Vol. II. January to July, 1870. Boston: James Campbell.

From the authors:

Medical Opinion of Charles A. Lee, M. D., in the matter of Carlton Gates, deceased.—The Treatment of Croup. By Fordyce Barker, M. D.—Oxygen Gas as a remedy in disease. By Andrew H. Smith, M. D.—First Annual Report of the Maryland Eye Infirmary.—Annual Circular and Catalogue of the Bellevue Hospital Medical College.

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ORIGINAL COMMUNICATIONS.

THE TENDENCIES OF MODERN PSYCHOLOGY.

BY A. B. ARNOLD, M. D.

IF Psychology shall ever be successfully cultivated as a science, its study must not be limited by the requirements of the medical art, nor made subservient to schemes of philosophy. The extremely dependent and special conditions of mental states and operations, the multiplicity of the factors, and the complication of the processes which psychological inquiries meet at every step, are not the only causes which have naturally retarded this branch of science. With the exception of an improved knowledge of the physiology of the organs of special sensation, and some advances made in determining the time measurement of certain psychical actions,* no results have been derived from the vast field of

* See an excellent summary of "The Recent Contributions to Physiological Psychology," by Professor W. Wundt, in "Der Viesteljahrsschrift fur Psychiatrie, Psychologèe und Gerichtliche Medicin.

observation offered to medical men to penetrate the intricacies of the organ of thought, and to ascertain its laws with any degree of scientific accuracy. Brilliant and useful as are the recent contributions to a better understanding of the structure and functions of the nervous system, yet comparatively little has thereby been added to our scant knowledge of the genesis and order of psychical manifestations. Practitioners, as a general rule, are also rather disposed to watch and study the indications of treatment in disordered actions of the brain, than to attempt the disentanglement of mental processes or to analyse their elements. Nevertheless, the prospect held out to achieve for psychology what has been accomplished for the filiated sciences, rests on the assurance that the necessities of medicine must eventually lead to such a desirable result. For instance, the divergence of opinion on what constitutes a sound mind, or rather the want of a proper definition of insanity, places the medical expert in a very trying, if not painful, position. Phrases which betray their scholastic origin, and technical expressions current in courts of law, are vainly sought to be brought in harmony with physiological reasoning. And here, probably, we touch the very point, which, when duly considered, will disclose a potent cause of the backward state of psychology.

The history of the inductive sciences reveals on every page the tendency of human thought to resort to assumptions and speculations where observations are deficient and judgment is at fault. In proportion as the knowledge of the uniformities of nature gain in precision and certainty, many of the fanciful creations of a forward philosophy will diminish, and the rest lose much of their credit. Every real acquisition, therefore, in any of the sciences was followed by the rejection of some of the fictitious entities which had usurped the place of a legitimate principle of explanation. But the rate of this weeding-out process

must obviously be slow in the ascending series of sciences which treat of highly derivative and greatly involved classes of objects. It is owing to this circumstance, perhaps, more than to any other, that the metaphysical method used to be exclusively employed in the elucidation of mental phenomena. In fact, the validity of a physiology of the brain is still denied in certain quarters, and it is yet too much the fashion to speak of its feasibility with great reserve and many qualifications. Whatever apprehensions may, however, be felt on this score, it may be confidently asserted that no progress will be made in the science of the mind as long as the true method adopted in other scientific pursuits is discarded.

It may, perhaps, be not amiss to advert to some of the chief arguments which are generally directed against the attempt to found psychology on the data furnished by physiology. It is alleged that psychology is conversant about phenomena which stand in no relation to any other, and pursues a course of investigation which has no parallel. It is further alleged that the mind is not the function of any bodily organ, but is merely connected in some mysterious or inexplicable manner with the nervous system. The latest and most formidable supporter of this view—Sir William Hamilton—starts from the assumption that consciousness is the principal source "from which all knowledge of the mental phenomena is obtained, * * * and that the various aspects which consciousness presents when in a state of action are only so many of its modifications, which may be conveniently divided into a number of faculties. * * * No assistance is afforded to mental philosophy by the examination of the nervous system."* The exclusive competency thus assigned to the intuitive method in conducting psychological inquiries, every psychol-

* Metaphysics, Lecture XV.

ogist will deny; and the rejection of the causal relation between brain and mind takes the whole matter out of the domain of science. But, even on metaphysical grounds, this presumed dualism of mental and physical phenomena is untenable. For let it be supposed that mental phenomena are the modifications of an unknowable basis, just as physical phenomena are inferred to be the effects of an unknowable substrata, but that these two orders of phenomena stand in some kind of relation to each other or are connected. If there is now no point of resemblance or correspondence between them, and their incompatibility is radical, then their connection, if possible at all, ought to be of an exceptional, or at least of a casual nature. But as it is, nevertheless, admitted that these two orders of substances, according to universal experience, seem to be blended into one, then the connection must be actual or fundamental.

A far more guarded expression respecting the self-sufficiency of the introspective—or rather the intuitive—method in determining the indecomposable elements of mind and their interaction, has been ventured by another distinguished thinker, who is not altogether prepared to undervalue the recent advances in neuro-physiology. John Stuart Mill, in his admirable system of logic, declares that, although he is not convinced that the states of mind are generated by states of the body, and believing that psychology is still under the necessity of evolving its principles by the reflective method, yet he intimatas that "the laws of mind may be derivative laws resulting from laws of animal life, and that, therefore, their truth may ultimately depend upon physical conditions."

The tendency of German thought to escape from the meshes of transcendental speculations, which had invariably vitiated psychological studies, is also significant. Among the systematic writers the names of Herbat and Beneke occur, who protest in strong language against mixing up

psychology with metaphysics. Beneke* especially strives to bring the investigation of mental phenomena within the circle of the experimental sciences. He admits that a parallelism obtains between body and mind, but expects little aid from the results of physiology. The so-called original mental faculties and their play upon each other, he rejects as entirely illusory, for they are "not performed, but predetermined." The only faculties or native energies of the mind are its susceptibilities to respond to appropriate stimuli, which are then elaborated into mental forms. Perception, emotion, intelligence, volition, &c., &c., are, according to this view, highly derivative products, evolved in virtue of certain processes from the elementary contents of the mind, both of which may be ascertained by a retrogressive analysis.

It would be tedious as well as unprofitable to cite additional instances in illustration of the futile endeavor to construct a psychology on the results obtained by introspection alone, though few will probably join in the ridicule which Comte has thrown on "the supposition of a man seeing himself to think." The many excellent and sometimes profound observations scattered through the voluminous writings of professional metaphysicians cannot well be spared by the future psychologist when he comes to take a dispassionate survey of the field of inquiry before him. Thus far, however, not a single indisputable proposition has been advanced—not one generalization has been reached of any scientific value to psychology from that source. This unproductiveness is undoubtedly owing partly to the dissociation of psychological from physiological studies, and partly to the fear of making approaches towards an unpopular scheme of philosophy. On the other hand, it must not be concealed that the attempts of founding systems of psychology on the scant knowledge of the anatomy and

* Prof. Edward Beneke, Lehrbuch der Psychologie.

physiology of the brain and nervous system of man and the higher animals has likewise proved premature and unsatisfactory. This is especially true of the phrenology of Gall, which could never succeed in gaining the support of physiologists, although the foundation on which it rests is warranted by sound inductions. The many and fatal objections raised against Gall's organology are so well known that it is hardly necessary to advert to them here. Its radical defect consists in this, as it has been well expressed: Phrenology was not discovered, but invented. Gall accepted, in a very uncritical spirit, the current classification of mental forms, and localized them in the brain on a principle of distribution equally vague and arbitrary. The undeserved praise bestowed by Comte on Gall's hasty inferences serves only to show how easily even a well-disciplined man of science can be carried away by specious reasonings based on a modicum of truth.

Few attempts have been made by medical men to systematize the little we know of mental physiology, for the obvious reason, as remarked by Sir Benjamin Brodie in his Psychological Inquiries, "that the subject does not admit of being presented in the shape of a systematic treatise." A similar view concerning the fragmentary state of psychology is implied in the title adopted by Sir Henry Holland for his much-prized work on some interesting questions of the physiology of the mind. In Prof. Bain's meritorious work on "The Senses and the Intellect" we meet for the first time with an orderly collection of the detached results of psychological investigations, though the descriptive method of presenting the subject-matter can only be considered the preparatory stage of a scientific exposition. The mere enumeration and detailed account of mental phenomena can as little be called a psychology as a well arranged and labelled herbarium can be dignified by the name of botany.

It remains yet to notice with what degree of success the scientific idea of a psychology has been realized by those who start from the data yielded by neuro-physiology, and treat of the mind as being the aggregate functional activity of the brain. There is, however, no need of doing this, for the few authors who have proposed to themselves such a task evaded more or less the risk of indulging in immature conclusions. They have for the most part restricted themselves to general statements, and only occasionally pointed out analogies or suggested hypotheses, which are not scientifically indefensible. But this much has already been gained by those efforts: Psychology has now fairly entered within the circle of positive sciences, and whatever acquisitions shall in future be in store for it must be expected to come from these explorers of this obscure field of inquiry, who believe in the possibility of a physiological psychology.

OBSERVATIONS ON A CASE OF HEMIPLEGIA.

BY FREDERIC GARRETSON, M. D.,
Baltimore, Md.

RICHARD CHENOWETH, Lieutenant of Police in the Middle District, thirty-eight years of age, while on duty at the Station-house was suddenly seized with apoplexy on the afternoon of Wednesday, August 10th, 1870.

A physician who was first summoned used restoratives, and administered a purgative which soon acted freely. Dr. Van Bibber was soon after called in, and exhibited the muriate of ammonia, applying a blister to the back of the neck, and a stimulating liniment to the legs.

This treatment was followed until Friday morning, when the patient was transferred to my care, and I make the following notes of his case from that date:

Aug. 12th, noon. Found the patient quiet, but on being questioned indicates by gestures that he has pain in the left

side of the head; is scarcely able to articulate a word, but moves the tongue easily, and protrudes it to the left side; no tendency to coma; expression intelligent and rather anxious; pulse eighty, full and soft; respiration twenty-four, easy and deep; skin warm and moist; no facial paralysis, but the mouth cannot be opened widely, and there is slight difficulty in swallowing; there is complete motor paralysis of the right arm and leg, but sensation seems to be almost unimpaired; the left side is not affected at all.

Ordered sponging of the spine with hot water every hour; patient to sit up in an arm-chair until fatigued; omit the medicine, and give beef tea every two hours.

8 P. M. Patient restless and weeping, constantly moving from bed to chair; complains of no pain; pulse and respiration as before, but the tongue is now protruded without deflection to either side, and some weakness of the *left* arm and leg is observed; the right side is still completely paralyzed. Hoffman's anodyne and bromide of potassium were given, and procured several hours of quiet and natural sleep.

Aug. 13th, 7 A. M. Patient very anxious, restless, and weeping; is entirely unable to speak, and swallows with more difficulty. He is now able to move the right limbs quite freely, and the loss of power on the left side has increased, so that there is little difference between the two sides; a sinapism is applied the whole length of the spine and to the throat; beef tea, continued with a little brandy, the pulse being ninety-four and weak; respiration twenty-eight, but not laborious.

2 P M. The only change to be noticed is, that the restlessness now alternates with a tendency to stupor with stertorous respiration; uses both arms and legs about equally, and is strong enough to help himself a good deal in moving from bed to the chair, which he does frequently.

R.

Strychniæ - - - gr. ½
Fl. Ext. Valerian
Aquæ - - - - - aa 3 j
Ft. Sol.
S. 5 drops every hour in milk.

8 P. M. The medicine was given every hour until three doses were taken; patient swallows better, and has more strength in the right side, but less in the left; pulse ninety, breathes better, and there is less tendency to coma; some hiccough which seemed to cause great distress, was relieved by a hot camphorated cataplasm to the præcordium.

Aug. 15th, 2 A. M. I was called at this hour, as the patient was supposed to be dying. The hot cataplasm, inhalation of ammonia, &c., soon relieved the coma sufficiently to enable him to swallow, when ten drop doses of the solution of strychnia were given every hour till four doses were taken. Under this treatment he soon rallied so far as to show that he had some use of the right arm and leg, while the left were completely paralyzed. From this time there was no peculiar feature developed in the case, the patient gradually sinking, and dying comatose, at noon of the 17th, having been unable to swallow for twelve hours previous.

The solution of strychnia used in this case was given in doses of ten drops hourly, for from three to five hours, and then suspended until the patient seemed to be sinking. Its exhibition was always followed by temporary reaction, and no toxic effects were produced by the increased dose given since the night of the 15th.

The bladder acted normally in this case to the last; the bowels were only moved by an enema on the 14th, but there was no paralysis of the rectum.

As to the history of this patient, I learned that he had, last summer, what his friends called a "sunstroke," but I:

have no doubt that it was an apoplectic attack. This had caused no paralysis, but since that time the patient had suffered much from headache, chiefly on the left side. He was a man of temperate and regular habits, but had been for several years very feeble, and had apparently not been benefited by a protracted course of mercurial treatment.

The point most interesting to me in this case is the translation of the hemiplegia from the right to the left side, with an intermediate stage of considerable voluntary power on *both* sides. I have never met with such a case before in my own experience, nor can I recall any report of one.

I presume that the symptoms are to be explained by supposing that the effused fluid made its way from the left to the right lateral ventricle, and that the partial restoration of power in both limbs was due to diminished pressure from the diffusion of the fluid over a larger surface.

I regret that an autopsy could not be obtained to make my notes of this case more complete and satisfactory.

SKIN GRAFTING.

REPORTED BY W. W. WILEY,
Resident Student in the University of Maryland Hospital.

MICHAEL GRAHAM, aged twenty-six, an Irishman, smelter by trade, was admitted into the hospital March 10th, 1869, having been severely burned on the previous day. Whilst at work in a foundry, in the act of carrying molten iron from the smelting furnace, an accident befell the ladle filled with the fluid metal, by which a quantity of this intensely heated liquid was poured into the boot-top on his left leg, severely burning it from the knee to the ankle. Under the usual hospital treatment of carbolized kerosene oil locally, and the internal administration of opiates, the sloughs

cleaned off, leaving the left leg a red granulating surface from just below the knee to the ankle.

As he was the picture of health, a young, strong and vigorous patient, the healing process set in with much activity, and a circle of new skin made its appearance from both the upper and lower edges of the ulcer, and encroached with considerable rapidity upon the raw surface. When this cicatrizing process lost its activity, the further healing was coaxed on by varied stimulating agents, but it finally came to a stand, and after remaining seven months in the hospital he went away, still having a large ulcerated surface upon his leg. At the outer side of the limb the new skin from the upper and lower edges had met, growing into each other. The inner side of the limb was still an open sore. The patient was kept under observation as an out-patient, but the healing process was exceedingly slow.

In July Professor Chisolm determined to repeat some experiments successfully put into operation by Mr. Pollock, of St. George Hospital, London—experiments suggested and first tried by M. Reverdin, of the Paris Hospital. On July 25th, 1870, in the open sore of this patient was engrafted a very small piece of skin, taken from his chest. The chronic ulcer, still occupying a large area on the inner side of the leg, was about five inches in length by one and a half to three inches in width. The surface of the sore was bright red, secreting pus, with the edges consisting of a thin pink pellicle of skin of apparently low vitality. The patient reported no appreciable progress in healing for many weeks. The ulcer had now existed seventeen months.

Professor Chisolm explained the nature of the superficial portions of the skin; how beneath the epidermis were formed nucleated living cells, which were constantly reproducing their kind—these in turn gradually pushed to the surface as dessicating scales to form the constantly exfoliating epidermis or scarf skin. He stated that it was not his

object to take the outer layer of epithelium, which consisted of what Lionel Beale, of London, called formed or dead matter, cells without nuclei, which had played their part in the living economy, and, possessing no more germinal matter, were incapable of further growth or reproduction. From these dead cells nothing could be expected. The living portion of the small skin graft was the under layer of epithelium, known by anatomists as the Malpighian layer or the Rete Mucosum. In this layer presided the formative power for rapid proliferation, and this was the essential portion to be engrafted. The superficial epidermis was only taken along with it for convenience, as it would be quite troublesome to isolate the living from the dead cells.

The mode of performing the operation was as follows: A very small fold of skin upon the chest was seized by means of a fine-toothed forceps, and cut off with a scissors. When removed it was about the size of a half of a grain of rice. In order to be certain in securing living cells capable of reproduction, the snipping by the scissors was deep enough to draw a drop or so of blood from the small wound. With a sharp-pointed knife an oblique opening was made in the centre of the raw surface of the ulcer, sufficiently deep to enclose the graft. When the blood ceased to ooze from this small incision the graft of skin was thrust well into it, and then a strap of diachylon plaster was applied to retain it in place and protect the planted spot from injury. This dressing was not removed for two weeks. When taken off a small white speck marked the place of grafting. This point rapidly increased in size, and produced a growing island of healthy skin in the midst of raw tissues. Now (fifty-eight days after the transplanting) the new skin has extended to the border of the ulcer, cutting the raw surface into two portions. For the space of an inch square a dry, white cuticle is seen, surrounded by a bluish film, which marks the most recently formed skin.

This bluish pellicle has become intimately fused with the old edges of the ulcer.

In this very successful skin grafting process Professor Chisolm finds an easy means of rapidly healing chronic ulcers, especially those occurring from accidents, burns, &c., in young and vigorous patients. It is only necessary to multiply the number of grafts of healthy skin, and the raw surface, however large, will soon be covered with a natural integumentary tissue.

I have seen under the care of this surgeon several cases of successful skin grafting—all of them doing well and promising the best results. I have reported the most advanced, the largest and most rapid growth of those cases experimented upon, believing that this new step in conservative surgery cannot but interest all who practice this branch of medicine.

EXTRAORDINARY CASE OF ENLARGED SPLEEN

REPORTED BY JOHN G. JAY,
Resident Student at the University of Maryland Hospital.

THE following remarkable case of enlargement of the spleen was admitted into the University Hospital, and attracted the attention of those who are connected with that institution. As such cases are comparatively rarely met with, even by those who have the most extended opportunities for observation, an account of the same may be of interest.

The patient, a negro man, aged twenty-eight years, by occupation a sailor, came into the house on the 28th day of April, 1870. From his account he was brought up in a malarious district, and had been employed for a number of years on some of the bay and river craft of the lower counties of the State of Maryland. During this period he had

been very frequently the subject of bilious and intermittent fevers. According to his statement uneasy sensations referable to the spleen were first experienced about eighteen months previous to the date of his admission, and gradually increased in severity.

When he first come under my observation his condition was as follows: The abdomen was enormously distended by enlarged viscera and some accumulated fluid, dependent upon *mechanical causes*. The lower extremities were very edœmatous, pitting deeply upon pressure, with the integument made tense from excessive dropsical effusion. When the case was admitted it was supposed to be one of Bright's disease of the kidney; but, upon further examination, the diagnosis of splenohæmia was clearly established. There was no puffiness of the eyelids nor swelling of the face and upper extremities; the countenance was not such as would warrant a belief in renal disease, and finally the absence of albumen in the urine seemed sufficient to exclude Bright's disease of the kidney. On the other hand, the induration and tumefaction in the left hypochondriac region were plainly perceptible to palpation. With the assistance of percussion and manipulation through the thin and feeble abdominal walls, the outline of the enlarged spleen, with its peculiar fissures, could be distinctly defined. There had been frequent epistaxis, and also passages of blood from the bowels.

The case being diagnosed as one of enlarged spleen with the usual accompanying phenomena, the patient was put upon chalybeate tonics with quinine, which failed however to give any good results, or to diminish in any way the enlarged organ.

A successful case of extirpation of the spleen, occurring in the practice of a German surgeon, having been reported in the English journals about the time of the admission of

this patient into the hospital, the removal of this organ was suggested by Prof. Chisolm for the case in question, as it was apparent that internal medication would be of no avail. An opportunity, however, was not afforded to test the value of this operative expedient, as the death of the patient was induced through an accident which occurred to him one week after his admission into the wards. In moving along one of the hospital passages he fell down a short flight of steps, and in his distended condition was so seriously injured that he died within twenty-four hours.

After death an autopsy revealed the following condition: Before opening the body 7½ quarts of dark bloody fluid were drawn off by paracentesis. The abdomen was then opened by a crucial incision; the flaps being turned aside, the abdominal viscera were exposed in the following order: The left lobe of the liver extended about 3½ inches to the left of the median line, and overlapped the spleen to the extent of 4 inches. Its right lobe projected below the margin of the ribs 3½ inches. The weight of the liver was 7¾ pounds—the average weight of the healthy liver being from 3 to 5 pounds. The stomach was small and pushed over to the right side by the enlarged spleen. The omentum was much inflamed. The spleen extended from the pushed up diaphragm downward throughout the whole of the left side of the abdomen, reaching nearly to the pubes, also encroached on the right side for about 2½ inches beyond the median line. It was lobulated upon the right margin, the fissures being 4 in number, and from 1 to 2 inches in depth. This organ was adherent to the diaphragm.

There were also attachments between other parts of the abdominal viscera. The weight of the spleen was 9¾ pounds; length, 16 inches; greatest breadth, 11½ inches. In contrast, the normal weight is 6 or 7 ounces. The

heart was also somewhat hypertrophied and forced upward and out of position by the enlarged abdominal organs. The kidneys presented a normal appearance.

Although the size of this spleen was so very great, much larger than many put upon record, still larger ones have been mentioned by writers on pathological anatomy.

Several beautiful casts were taken of this spleen and placed in the Museum of the University of Maryland.

MEDICAL SOCIETIES.

THE SEMI-ANNUAL MEETING OF THE MEDICAL AND CHIRURGICAL FACULTY OF MARYLAND.

THE Faculty met at Cumberland, Md., on Sept. 13th, at 10 o'clock A. M., the President, Prof. N. R. Smith, of Baltimore, in the chair. The attendance was small, consisting principally of Allegany county and Baltimore city members.

Dr. Hartman, of the Board of Examiners, presented the names of several applicants, all of whom were elected to membership.

Dr. Ohr, of Cumberland, in a short address, welcomed the Faculty to Allegany, and announced that the first day of the session would be devoted to the discussion of papers relating to medical subjects, the second to an excursion to the coal mine.

Dr. John Morris, of Baltimore, exhibited some samples of bread and flour made by the "Bentz process," by which, it is claimed, much of the nutritious elements of grain, usually lost, are saved. Prof. Smith followed in a few remarks upon the subject, when, on motion of Dr. Morris, a committee consisting of Drs. Morris, Ohr, and Kinnemon were appointed to examine the subject, and report upon it at the next meeting.

Prof. J. R. Page, of Baltimore, read a very interesting and suggestive paper on "The importance of the Study of Comparative Pathology in its bearings on Human Pathol-

ogy." On motion, the thanks of the Faculty were returned, and the paper referred to the Committee on Publication.

Prof. Smith delivered an address on "Fashions Controlling Medical Views and Practice." Reviewing the history of medicine in the past fifty years, Prof. Smith illustrated his subject in the various theories which ruled the professional mind during that period, counselling conservatism and the exercise of common sense. The address was practical and instructive, and was well received.

Dr. A. B. Arnold, of Baltimore, read an admirable paper on "The Tendencies of Modern Psychology," which we give in full in another place.

The Secretary read dispatches from Profs. Chisolm and Donaldson expressing regret at their inability to attend the meeting.

Dr. Thomas M. Healy, of Cumberland, exhibited a splint which he had devised for the treatment of fracture of the fore-arm; referred to the Section on Surgery. On motion, the Faculty adjourned to meet at 3 P. M.

The Faculty met at 3 o'clock, Vice President Ohr in the chair.

Dr. John Morris made some remarks on the duration of pregnancy and the causes of labor, illustrating them by models. An interesting discussion followed, participated in by Drs. Ohr, Maddux, Arnold, Kloman, Healy, and others.

The Faculty then adjourned to 7½ o'clock.

In the evening the Convention was resumed—Professor Edward Warren in the chair.

The subject of the afternoon session was renewed, and gave rise to much debate, the peculiar effects of ergot and opium as parturiants being discussed.

Dr. Latimer read a paper on the "Origin of Diseases," which was referred to the Section on Practice.

Professor Warren exhibited an apparatus devised by him for the treatment of fractures of the clavicle.

On motion, both Drs. Warren and Healy were requested to exhibit their splints before the Section on Surgery.

Dr. Ohr read a report of a case of cerebro-spinal meningitis, which gave rise to some discussion, when, on motion, Dr. Ohr was requested to report the case more fully to the Section on Practice.

After a vote of thanks to the Committee of Arrangements, the Faculty adjourned.

On the next day, Wednesday, a special car having been provided, the members of the Faculty made an excursion to the coal mines, where a most delightful morning was spent in viewing the beautiful scenery and the operations of the mines.

At Lonaconing a bountiful dinner was served, after which the Baltimore delegation returned home *via* Piedmont.

SELECTED ARTICLES.

ON RAPID PULMONARY CONGESTION, AND PULMONARY APOPLEXY, AS A CAUSE OF DEATH AFTER SURGICAL OPERATIONS OR INJURIES.

BY JOSEPH BELL, M. D., F. R. C. S., &c.

SURGEONS are sufficiently familiar with the effects of pyæmia, septicæmia, and hectic fever, as evinced in inflammation, sometimes sufficiently acute, of internal organs, and especially of the lungs.

Pneumonia and pleurisy may be the result of direct injury, as from a fractured rib; spread of inflammation, as after the operation for ligature of the subclavian; systemic infection, as after some operation or injury involving suppuration.

Metastatic abscesses are too familiar in pyæmia. Tubercular deposits may precede, accompany, or result from the exhaustion to the system produced by a scrofulous joint.

Pulmonary apoplexy, in which rupture of the pulmonary tissue has taken place, or acute pulmonary congestion, stopping short of apoplexy, are not so frequent, or at least are not so much spoken of, as causes of rapid death after surgical disease or injury.

In cases of fracture of the cervical vertebræ, nearly all surgeons are agreed, that if the fracture involve the cord, at or above the level of the fourth vertebra, the patient will die speedily from interference with his respiration, from having only the diaphragm to trust to; and even if the fracture be below the origin of the external thoracic nerve, still the diaphragm, even aided by the serratus magnus, is unable to carry on respiration with sufficient power to prevent pulmonary congestion and accumulation of mucus in the bronchi. It is remarkable how very little exact information regarding the pathological condition of the lung, in such cases, we find in the more common English text-books.

I must say that, to my mind, passive congestion and accumulation of mucus in the bronchi are both quite insufficient to explain

the rapidity of death, and the severity of pulmonary changes, in many cases of spinal injury.

For example, the following:

CASE I.—W. W., æt. twenty-two, a very strongly built healthy young man, was sleeping on some sacks, when a friend (?) threw down another sack, weighing about twelve stone, on his head, dislocating the third and fourth cervical vertebræ from each other, and fracturing the body and left articular facet of fourth vertebra. This was at 6 A. M. He was at once paralyzed from the neck downwards, with the exception that he could slightly raise the right arm. His breathing was purely diaphragmatic from the first. He was torpid and slightly livid, and complained chiefly of pain in his neck.

At 12 A. M., lividity and torpor had increased; his extremities were cold, and his breathing embarrassed. He died exhausted at 3 A. M., or just twenty-one hours after the accident.

Both lungs were much engorged with venous blood, and the right contained in its posterior lobe a large pulmonary apoplexy, of the diffuse form, occupying the greater part of the lobe behind. The heart and liver were both congested, and also soft and flabby in texture.

Still rarer and more inexplicable is the result of a case like the following:

CASE II.—Mr. W. D., æt. forty-six, fell off his horse, which probably trampled on his chest. He had lain for some minutes on the ground in an insensible condition, and was picked up and brought into town (four miles) in a carriage.

I found him in bed, still very drunk, but not in the least comatose. He had two severe scalp wounds, one over right temple, the other over occiput, each about two inches in length, neither penetrating to the bone, but only exposing the periosteum. The temple wound had bled most profusely, but the bleeding had been stopped by Dr. Pattison, who was in attendance. He had two broken ribs, the sixth and seventh on the left side, close by the nipple. He was bruised in many places, and had an ugly lacerated wound of left thigh several inches long. Various wounds dressed. He was very restless, vomited frequently dark bile smelling strongly of whisky. Pulse weak, 100.

22*d.*—Next morning he was much better, still not quite himself; after a restless night, considerable pain in chest, still no pulmonary symptoms whatever, though carefully examined.

Vesp.—About six this evening, after a good day, he suddenly was seized with a fit, described as a convulsion fit, after which the most sudden and frightful breathlessness, with extreme lividity, pale lips, tossing to and fro, and throwing his arms about, fighting for breath; yet nothing in the larynx, trachea, or bronchi; no obstacle to the *admission* of air. Pulse 120, weak and fluttering. The symptoms were those of hæmorrhage into one or other pleura or into the pericardium, yet all the physical signs were absent. The dulness was equal in both bases; there was no bulging of the rib spaces, and no churning noise with the heart-beats. There were râles over the whole chest, large and loud, obscuring the finer breath-sounds.

He was ordered sinapisms, hot foot-baths, hot cloths to his arms, whisky, ether, etc., and his relatives were telegraphed for at once.

23*d.*—After a fearful night of struggle for breath, he was still alive at 8 A. M., contrary to expectation, but much weaker, and he sank at 12 noon.

Post-mortem examination of chest and abdomen only. The body, an exceedingly powerful, well-nourished man. The fractured ribs were found as diagnosed, with slight laceration of lung at fracture. Both lungs were absolutely solidified with pulmanary apoplexy, hard, black, and heavy, with scarcely any breathing space left. Bronchi were full of a profuse muco-frothy discharge. The heart was flabby and very ill contracted; the right side contained a large loose clot. The liver was friable, yellow, apparently in the early stage of fatty liver. The other organs were apparently absolutely healthy.

None of the circumstances of the accident, nor surgical lesions, sufficed to explain the pulmonary changes and the rapidity of the fatal issue. It may be said that two ribs were broken, and broken inwards, causing laceration. True; and doubtless, had there been time, pleurisy might have resulted, and even a local pneumonia centring from the injured portion of lung. But the right lung was even more destroyed than the left, aud the apoplexy in both was central, not peripheral.

Neither can we explain it by any injury to the cord. There was not the slightest evidence of anything of the kind; the patient's muscular power was unimpaired almost to the end. He made no complaint of injury to the neck, nor was there any bruising. Exposure to cold will hardly explain it. The patient was a man of most robust health and Spartan habits, invariably writing under an open window even in the depth of winter. The weather was not very cold, and he had not lain long on the ground before being picked up.

On discussing this question with my friend Dr. George Balfour, he most kindly directed my attention to a very interesting clinical lecture on this very subject, lately delivered by Professor Verneuil of Paris,* which, without shedding much light on the causation, gives a vivid description of the lesion, and details some illustrative cases. I quote from it:

"In enumerating certain causes of unforseen and sudden death in surgical cases, I have omitted a lesion which, from its gravity and suddenness, ought to have appeared in our list. I mean pulmonary congestion, frequently accompanied by pulmonary apoplexy or rupture of the tissue of the lung. I have five times met with this formidable complication. I have recognised it only in the post-mortem theatre, when seeking the explanation of sudden death, and have never yet diagnosed it during life. I hope that now, when my attention is aroused to the subject, I may in future diagnose it when it occurs, and I belive that often it is not recognised. My observations were entirely in surgical wards, and all my cases suffered from some surgical disease which acted as a predisposing cause. These were very various: erysipelas, glandular inflammation, septicæmia, delirium tremens, and hernia. All the patients were males, two young, aged twenty-four and twenty-five; two old, sixty and seventy-two; the last forty-six years old. In all the lesion was identical. Both lungs attacked at once and in every part, containing little air, resembling in color a blood-clot, and engorged with thick, black, viscid blood.

"Except the congestion and apoplexy, evidently quite recent, the lungs showed trace of no lesion whatever, neither tubercle, pneumonia, or pleurisy. The heart presented no valvular lesion.

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* Gazette Hebdom., Oct. 22, 1869.

"The blood was always very black, thick, and viscid; indeed, exactly such as one meets with in severe fevers. Death was always very rapid, preceded by an agony of some hours, and certainly caused by the pulmonary disease, before the appearance of which the patients were indeed seriously ill, but still in no apparent risk of death, which in each case took us by surprise. Once only was bloody sputum noticed, twice vomiting existed, never any cough to speak of. So far as the lung went, the symptoms were reduced to a minimum."

I can here only very briefly abstract M. Verneuil's cases:

CASE I.—Man, aged twenty-four, entered hospital for an acute conjunctivitis of one eye, for the relief of which ten leeches were applied. Next day symptoms of erysipelas showed themselves, for which he got a purge, and died so suddenly in the night, that nothing was observed.

Post-mortem.—Absolute health of every organ except the lungs, which were the seat of intense congestion. The lower lobe of the right lung was so thoroughly apoplectic as to be a bag of blood; the corresponding pleural cavity was also full of black half-coagulated blood.

CASE II.—Man, æt. twenty-five, strong and perfectly healthy, got his elbow bruised between two buffers. The humerus was broken, and on the twelfth day after the accident the broken fragments were removed, and eventually the joint excised; after which, the next day, he died rapidly after delirium and restlessness.

Post-mortem.—No phlebitis, no angioleucitis, no pyæmia; the lungs were completely hepatized, but there were no special apoplectic portions.

CASE III.—B., æt. seventy-two, after a superficial injury to his leg, suffered from inflammation of the lymphatics, was feverish for two or three weeks with delirium, and considerabre albumenuria. He began to improve in general health, but had a series of small abscesses along the inflamed lymphatics. He then lost his appetite, had frequent and uncontrollable vomiting, and died very suddenly without any lung symptoms being noticed.

Post-mortem.—Some interesting maladies of the gastric arteries and of the intestines were observed, which I need not detail.

Both lungs throughout their whole extent resembled in color the pulp of the black cherry called guigne (*gean.*) They contained little air, but a large quantity of thick fluid blood. The right lung was in a condition of true pulmonary apoplexy, but contained several points of ill-defined metastatic abscess.

CASE IV.—An emaciated man of sixty had a very large hernia incarcerated for eighteen days, but not actually strangulated. He was ordered rest, purgatives, and injections; no attempt at reduction was made. He was also ordered a bath. He had scarcely been a quarter of an hour in the bath when his breathing became embarrassed, his extremities livid. He was removed to his bed, and, notwithstanding all treatment, died in an hour or two.

Post-mortem.—A large hernia, with no constriction, adhesion, or inflammation except in one part, where there was considerable ecchymosis. Liver was fatty. The lungs were immensely congested, and here and there the left lung showed patches of apoplexy.

CASE V.—A cabman suffered a simple fracture of his right fibula by falling off his cab when drunk. On the third day after admission he became delirious, knocked his limb about, and next day died very suddenly with embarrassed respiration.

Post-mortem.—Organs congested, but apparently otherwise healthy. Lungs were both congested in the most extraordinary manner, containing very little air, but on section discharging quantities of black blood.

As to the *causation* of this fortunately rare complication of surgical lesion, it is easy to theorize, but more difficult to prove the correctness of the theory.

I would be inclined to seek the connexion between the surgical lesion and its pulmonary complication in the *nervous system*, and probably in that little known system the *vasomotor* or sympathetic. Some disturbance to the branches regulating the tension of the pulmonary vessels might easily explain the rapidity and extent of the disturbance to the physical phenomena of the pulmonary circulation. We find this disturbance in *purely medical disease*, such as fevers, diphtheria, and the like, and we are not unprepared for internal visceral congestion in them.

musician, affected with hypospadias, in regard to the sterility of his wife, then twenty-four years old. The married couple having been left alone for some minutes, the semen of the husband, which had been gathered in a glass, was injected into the uterus. Conception ensued, which on March 30th, 1841, terminated in the birth of a girl. 4th. A woman twenty-seven years of age, having been married for seven years with a man sixty-five years old, without bringing forth children, was, after four injections had been made in vain, in consequence of the fifth operation, delivered at the proper time of twins, a girl who died within three months and a flourishing boy who lived. Since then the woman has not been pregnant. 5th. A woman twenty-six years old, having been married four years without having children, became pregnant after the second injection and gave birth to a healthy girl. 6th. A midwife, twenty-six years old, being affected with hypertrophy of the posterior lip of the os, had no children. In 1857, after artificial impregnation, she gave birth to a boy, and has not conceived since. 7th. The lecturer was as successful in the case of a woman thirty-five years old, whose husband was forty-six years of age. She gave birth to a boy after one injection. 8th. A woman twenty-nine years old was without children after six years' marriage; she suffered from fluor albus and descent of the womb. Artificial impregnation proved successful, and she became the mother of a girl. In two other cases, aged thirty-one and twenty nine, no result was obtained after respectively one and four injections.

The following are the final conclusions of Dr. Girauld: *The human female can in like manner be impregnated artificially as the females of the different species of animals. The direct introduction of the semen into the uterus brings no danger to the woman. The spermatozoa live over forty hours, during which time they make their way through the uterus and tubes to the ovaries. Whenever on their passage they meet with the ovum they can fecundate it.—Medical Repertory.*

ON THE TREATMENT OF EPILEPSY.

BY WALTER TYRRELL.

SINCE the publication of my last papers upon this subject, I am pleased to find that the use of strychnia in the treatment of Epilepsy has been taken up with success by many of the profession, both in this country and in the colonies.

In seeking to cure a disease like epilepsy we must look further than the mere stoppage of the attacks; we must produce some positive alteration in the nervous condition of our patient; we must detect and strengthen that weak spot in the nervous system that allows of the involuntary discharge of nervous power; for it is evidently thus that epilepsy arises. Irritation alone will not produce epilepsy. There must exist a predisposition, a hypersensitive condition of the nervous system, coupled with a want of power of control; for we see that similar causes of irritation may exist in a number of persons, but in only a very small percentage of these will epilepsy supervene, and in those few a deficient power of control of the nervous system is evidently existing. This is evidenced by the large number of adult epileptics who in early life have suffered from infantile convulsions, a disease identical with epilepsy; the predisposition to this disease has always existed, and the system has readily yielded to exciting causes of irritation.

Although it is my desire to confine myself as far as possible to points connected with the treatment of the disease, yet I feel called upon to notice one or two facts which have recently come under my notice, which strike me as having a strong bearing upon the pathology of this, and, indeed, upon all forms of convulsive disease, more especially with regard to the seat in which convulsions would appear to arise. Believing with Van der Kolk that the medulla oblongata is the centre in which convulsion is organized, it is my habit invariably to examine carefully the upper part of the spinal column in all epileptics who come under my notice, and I have been much struck with the frequency with which pressure in this region will give rise to a species of epileptic aura, arising from or proceeding to some distant part of the body. Thus on making pressure between the occiput and the atlas there is frequently pain or a peculiar nervous tingling felt, sometimes at the pit of the

stomach, sometimes down the arms, or it may be in the throat; and in some cases this aura may pass into a modified or even a complete epileptic seizure. In two cases in my practice this has actually happened. The first of these patients was a young lady, E. R., aged twenty. She had been epileptic for nearly five years. She was a strongly built girl, of sanguine temperament. An elder sister, suffering from melancholia, is in a lunatic asylum; the fits first appeared at the commencement of the menstrual period, and were attributed to fright. They came on every ten days or a fortnight, but more frequently occured at the catamenia epoch. They were very convulsive, but she did not bite her tongue. I very soon discovered the effect of pressure over the upper part of the spinal column, and it was upon the second occasion of my seeing her that an actual convulsion occurred. She described the aura as arising in the throat, coupled with a sense of constriction; this was but momentary. The face became deeply suffused; no cry was given; but convulsions, commencing in the upper extremities, soon became general. After this I frequently observed that similar effects could be produced by pressure in this spot, although I never carried it so far as to produce convulsion. The case (with this exception) presented no other special points of interest. It was much benefited by the use of small doses of strychnia. The attacks now are of a very modified description, and occur at much less frequent intervals.

The second case was that of M. A. W., a young lady, aged twenty-six, and the effects in this case were very similar. She had been epileptic for nine years, the attacks originating, in all probability, in the stoppage of the menstrual flow from exposure to cold. They came on at irregular intervals, were very convulsive, and she bit her tongue badly. She was pallid, and of a highly sensitive, nervous disposition. In this case, as in the last, I found that pressure over medulla oblongata produced the most distinct aura, the only difference being that the tingling sensation appeared to come from the pit of stomach, and was accompanied by a slight feeling of sickness. In this case I obtained marked benefit from the use of sulphate of zinc, in combination with the sulphate of strychnia; as the attacks lessened greatly, the aura has become more and more indistinct. I merely mention these facts, as they

appear to bear so strongly and to point so distinctly to the seat in which convulsions would appear to be organized.

To recur to the subject of treatment. I wish to point out in what mode of administration and in what doses the greatest advantage is to be derived from the administration of strychnia. On my first trials of this remedy, it appeared to me that large doses were necessary, and on reference to some of my earlier papers on the subject, it will be seen that the doses given were often very large. Lately, however, I have found that the use of very much diminished doses, given very frequently, not only produce results quite as favorable, but the good effects more quickly, and there is less chance of attacks arising from accidental irritations in the early stages of treatment.

Dr. Brown Séquard and others have called attention to the good effects to be obtained by the exhibition of the sulphate of quinine in cases where the convulsive attacks are marked by a regular periodicity. All that can be said of quinine may be said with still greater truth of strychnia. In those cases where disorder has originated in deranged menstrual functions, and where the attacks come on with great regularity at the catamenial period, I always look to strychnia with the greatest confidence.

In my next paper I purpose to define more fully what classes of cases will be found most amenable to this plan of treatment, and I shall illustrate my remarks with cases which have recently come under my notice.—*London Med. Times and Gazette.*

ON DISLOCATIONS OF THE WRIST.

BY HOLMES COOTE,

Surgeon to St. Bartholomew's Hospital, &c.

To the question, which is so often raised, Do we meet with cases of dislocation of the wrist in practice? the correct reply is, almost without exception, that under that head have been described instances of fracture, impacted or otherwise, of the lower extremity of the radius. In the museum of the hospital (Series iii., No. 78) we have the radius of a young man which had been broken three-quarters of an inch above its carpal articular surface. The posterior or dorsal margin of the upper fragment is driven into the

cancellous tissue of the lower one. Their palmar margins are in contact, but a projecting angle is here formed at the line of fracture. In another specimen the projecting angle is on the dorsal aspect (No. 89.) In other cases (Nos. 94, 95) the line of fracture is just above the epiphysis.

But in speaking of the "wrist," let us inquire what is meant by the term. If we refer to the movements of the hand we must include at least six articulations. (1) The rotation-joint, or that between the radius, ulna, and interarticular fibro-cartilage. (2) The flexion-joint, or that which allows the hand to drop towards its palmar aspect—namely, between the radius and interarticular fibro-cartilage on one side, and the scaphoid, semilunar, and cuneiform bones on the other. (3) The extension-joint, or that which allows the front of the hand to be raised towards the dorsal aspect —namely, between the scaphoid, semilunar, and cuneiform bones on one side, and the trapezium, trapezoid, and magnum and cuneiform on the other. (4) That between the pisiform and cuneiform bones, which favors palmar and volar flexion. (5) The carpo-metacarpal joints, in which the movement is very limited. (6) The trapezio-metacarpal joint, which gives to the thumb the freedom of action of a ball-and-socket joint, and enables it to be brought into every degree of opposition. The arching of the hand downwards is a combined movement of all the joints, including that at the bones of the forearm.

That dislocations are uncommon is due to the fact that the bones are small and numerous, the ligaments and surrounding tendons are strong, and it is not easy to apply such a degree and direction of forces as will cause such an accident in preference to fracture. When dislocations do occur, they are mostly combined with laceration of the soft part, being caused by severe machinery or gunshot accidents. The displacement of the bones then becomes of secondary consideration.

In combination with such severe injuries, the following dislocations have been observed: (*a*) Dislocation of the radius forward or backward, the ulna remaining attached to the carpus. (*b*) Dislocation of the ulna forwards, backwards, or inwards, the radius remaining attached to the carpus. (*c*) The tearing away of the carpal bones from the forearm. (*d*) Dislocation of the first and

second row of carpal bones. (*e*) The scaphoid, pisiform, magnum, and trapezium have been dislocated separately. (*f*) Dislocations of the thumb are well known; it may be thrown backwards, forwards, or towards the index-finger.

In speaking, then, of dislocation of the wrist, we must take into consideration the whole set of articulations. Such accidents are very uncommon, except as associated with severe compound fracture and laceration.—*Lancet and Med. Times and Gazette.*

LECTURE ON DISEASE: ITS NATURE AND TREATMENT.

BY DR. LIONEL BEALE, F. R. S.,

Fellow of the Royal College of Physicians, Physician to Kings College Hospital, and Professor of Pathological Anatomy in King's College, London.

BEFORE we can hope to determine conclusively the nature of the changes which constitute disease, or form an accurate conception of the phenomena occurring in the abnormal or morbid state, we must be able to understand the phenomena which characterize health. We ought to be acquainted with the exact structure of the tissue and organs of the body in the healthy condition before we can appreciate the alterations which have occurred in disease. We must try to discover what goes on when the elements of the tissues are nourished, and what effects, if any, result from variations in the quantity of nutrient matter sent to the part in a given time. Above all, we desire to learn what happens when each individual cell or elementary part of every tissue and organ is nourished normally, and the changes which take place in it when the nutritive process is modified. An accurate microscopic physiology is the necessary precursor of accurate pathology and sound Medicine. Upon no other basis can medicine be safely built. Hitherto, progress in medicine has been invariably associated with advance in physiology, and of those who have contributed most to the advancement of medicine not a few have been eminent as students of physiology. Milne-Edwards has well observed—"La Médecine est un art dont les progrès sont en grande parti dependant de ceux de la physiologie, et qui a sans cesse besoin des lumières fournies par les sciences physiques et chimiques."

In this course it will be my endeavor to show how much our knowledge of disease has been advanced by careful minute investigation of the affected tissues, and by instituting a comparison between these and the corresponding healthy structures. And I shall endeavor to indicate how very much more is yet to be gained by the further prosecution of similar methods of inquiry. If new observations shall compel us to change our views upon the nature of such important general pathological action as fever and inflammation, we shall have little cause for regret if, at the same time, our notions are rendered clearer, simpler, or more definite.

Many a thoughtful person who has already gained much information in the medical schools and in the wards of the hospital, is forcibly impressed with the little real knowledge he seems to possess, and feels a very strong desire to acquire more accurate information concerning the actual changes which take place in the living body in health and disease than he had been able to obtain. Such a person would probably inquire at the very outset if it were known in what particulars the morbid differed from the healthy tissue, and he would naturally desire to obtain specimens of healthy tissues as standards of comparison, in order that he might be able to judge with some degree of certainty, and with precision, in what respects there had been a departure from the healthy state. Knowing how much the healthy tissue differs from the morbid tissue in its ordinary characters, as observed by examination with the unaided eye, he would be led to inquire exactly in what particulars the cells or elementary units of the healthy differed from those of the diseased tissue.

But strange as it will appear, this method of study has been followed by few observers, and as yet has met with little favor among practitioners of medicine. The practical difficulties are undoubtedly great, but by no means insuperable, if men well educated in the practical details will but believe the work is worth pursuing, and devote themselves to it with care, intelligence, and patience. The method has found very little favor in this country, and it is to be deplored that microscopical inquiry in connexion with disease has been discouraged by many whose opinions exert great influence. For the most part, what has been said proves that those who have expressed opinions adverse to minute investigation

did not possess the knowledge to enable them to form a correct judgment on the matter. Perhaps it is natural, or at least not unnatural, that men who have risen to high positions in the medical profession without knowing aught whatever of careful microscopical inquiry, should underrate its importance, and, from its very delicacy and minuteness, condemn it; but on the other hand, it is quite certain that if these very authorities, being unprejudiced, could only be persuaded patiently to look at the objects which can be shown to them, they would soon change their opinion, and become the warm supporters of a method of inquiry they had previously condemned as useless.

Since all the changes taking place in every form of disease, whether it falls to the province of the physician or to that of the surgeon, affect the minute elementary parts or units or cells of the tissues, it must be obvious that no true notion of the nature of the changes which occur can be formed unless these are carefully studied, and they cannot be even seen without the aid of the microscope. For the demonstration of some of the most important alterations which occur in disease we need the highest magnifying powers which have yet been produced. In order to use these with advantage great practice is required, and the observer ought to be well skilled in the preparation of tissues.* Without doubt such observations require great care and patience, but there can be no question that many of the younger members of the profession are eminently qualified for the task, and would work zealously if they were not discouraged.

Of the elementary parts, units, or cells of the tissue.—By careful microscopical examination we learn that the elementary parts, or units, or cells of the tissues of man and the higher animals are very minute, few being as much as $\frac{1}{1000}$th of an inch in diameter, and many less than the $\frac{1}{2000}$th, yet we may in many instances distinguish healthy cells from diseased ones, and with precision. Each cell consists of matter in two very different states or conditions—1, *matter in the living state—germinal matter or bioplasm;* and 2, *matter formed from this, but in a lifeless condition—formed material.* The relative proportion of these two substances, as well

* For new methods of preparation and the mode of examining tissues under high powers, *see* "How to Work with the Microscope." Fourth Edition.

as the size of the entire cell, differs at different periods of life. In disease the size of the cell, the rate of its growth, and the amount of the germinal matter and formed material exhibit the greatest alterations, and the changes which take place occur more slowly or more quickly than in health. But the healthy changes are also modified, and in a very remarkable degree, by the development within the organism of nutrient materials differing in composition from the normal pabulum.

The whole organism is made of these elementary parts, and the *physics* and *chemistry of the body* can never be known until the physics and chemistry of these elementary parts are understood. It is therefore absurd to say that students should be taught the physics and chemistry of the body and not taught the physics and chemistry of the cell. But the study of physics and chemistry of the cell leads to the study of the "*vital*" *actions* of the cell, and some people are very much afraid of any study which leads the student to think about vitality.

At an early period of development the "cells" are destitute of any covering or envelope of formed material, and in many parts of the body throughout life are naked masses of germinal matter, as the white blood corpuscles and the lymph and chyle corpuscles. The healthy changes are modified in a remarkable degree by the development within the organism of such naked masses of bioplasm or living matter which, although presenting no peculiarities to be rendered evident by microscopical or chemical investigation, nevertheless differ most remarkably in properties and powers from any which exist in the healthy state. So, also, a morbid state may result from the introduction into the organism of living matters of a peculiar kind, *living germs* originating in a diseased organism of man or animals. Living germs from certain species of the lower animals, and plants may make their way from without by passing through the tissues into the blood of man, and produce such derangement and lead to such disastrous changes, that permanent damage to important textures may result, if, indeed, the organism escapes death.

I shall also have to consider the probable nature of that material, but not "impalpable," substance, which gains entrance into our blood when we become the unfortunate subjects of contagious

disease. The question of *contagion* is indeed a question of the highest interest, not only to those whose life's work is the study and treatment of disease, but to all who care for their fellow men, or look with any interest upon the generations which are to succeed, or who care to investigate the circumstances which have determined the rise and fall of nations and races, as recorded in the history of the past.

The formation of the potent poison, the manner in which it is conveyed from place to place, the exact way it gains entrance into the now unaffected though perhaps not healthy organism, the changes it works there, must engage our earnest attention; while the consideration of proposals for preventing its entrance into the body, or for destroying it, or stopping its deleterious action after it has entered, are matters of such eminently practical importance, that any time devoted to the discussion of such topics can scarcely be wasted. But it has been said, and by very high authority, that all that was to be gained for medicine by investigating minute structure had been gained, that probably little remained to be discovered of importance to us, and that little or nothing was to be expected from the further and more refined prosecution of pathological anatomy. But is it not a fact that our knowledge in these matters is still most imperfect? Nay, if the successful laborers who devoted themselves to this branch of study were multiplied a hundred-fold, I feel quite sure that there would yet remain plenty of new work to be carried on. This department of natural knowledge is as inexhaustible as every other. We may advance and advance, but our knowledge can never be complete.

And it has been said that our main business now is to advance therapeutics, our knowledge of which is very defective; but is it not a grave mistake to regard the treatment of disease as a subject altogether distinct from the question of its nature? Surely the first step towards treating a sick man is to ascertain exactly what is the matter with him; and if we are unable to succeed in this object to our satisfaction, ought we not to study in the hope of learning more than we know already? Much that is unsatisfactory as regards treatment unquestionably results from insufficient and imperfect knowledge upon our part of the nature of disease or of the exact points in which the morbid condition differs from the healthy state. So far, therefore, from suspending investigation into

the minute structure of the tissues in health and disease, we should prosecute such inquiries with increased ardor, confident that to further knowledge regarding structure and change which structure undergoes, will very soon succeed improved methods of treatment. And is it not as encouraging as it is significant how very much more satisfactory is the treatment of those diseases which we thoroughly understand than those of the nature of which we have yet much to learn? Conflicting views and contradictory assertions as regards methods of treatment obtain particularly in affections concerning the nature of which many different opinions may be entertained in consequence of the inexact state of information.

Is it not certain that if we knew exactly how our remedies affected the nutritive and formative changes in the elementary parts of the various tissues and glandular organs of the body, we should be able to treat disease much more successfully than we do now? Should we not, therefore, try to ascertain what changes are effected upon these elementary units by the various substances employed by us as remedies—nay, can we hope to materially advance therapeutics without careful and very accurate investigations of this kind carried out by the aid of the higher powers of the microscope? Our knowledge of healthy structure and healthy change in the organism has been much increased by microscopical investigation. Our knowledge of morbid changes has progressed of late years by the very same means. Is it not, therefore, reasonable to infer—nay, are we not forced to conclude—that the treatment of disease will be materially advanced by the very same method of inquiry? Moreover, we may feel sure that each inquiry will advance the others, and that as we learn more concerning healthy and morbid structure we shall gain new knowledge which will aid us in improving the treatment of disease. No one can doubt for an instant that the elementary parts of a gland which are acting very freely under the influence of mercury differ in important particulars from the elementary parts of the same gland in a quiescent state, but we are unable to state what the difference is; and the only direct means by which we can hope to discover it is careful and exact microscopical observation and the comparison of well-made preparations under high magnifying powers. Important changes are effected in elementary parts by alcohol, alkalies or acids, various vegetable and mineral salts, and other reagents. This is well

known to every one who is practically familiar with the delicate details of microscopical inquiry as applied to the investigation of the tissues of man and animals. Even in the lifeless state it has been observed that the elementary parts of different tissues are effected differently by the same reagent. How, I would ask, is it possible that such a line of investigation should turn out unprofitable to the medical inquirer? It has but to be prosecuted intelligently and zealously, and as great a change will be wrought in Medicine as has been already effected in Physiology.

I hold that he who advances our knowledge of the real nature of morbid action, must advance, and in many ways, the treatment of disease; and those who obstruct the progress of minute investigation of any kind, bearing upon the elucidation of the structure or action of the tissues and organs of man and animals, in health and in disease, are acting against the true interests of Medicine, and retarding not only the discovery of truth, but the relief of suffering in the years to come. The importance of clinical observation and diagnosis must be fully recognized, but at the same time the value of other and more delicate means of investigating disease must not be ignored. To demonstrate with certainty an extensive change which seriously affected the function discharged by highly important organs like the lungs, the liver, or the kidneys, and to be able to state the exact nature of the alteration, was indeed a step in advance of the Medicine of the last century, but in too many cases the information we gained only amounted to the knowledge that for days, weeks, months, and in some instances for years, a diseased process had been steadily advancing, until it had completely deranged the action of the organ involved, and that it continued to progress until it destroyed life.

The Medicine of the future has higher aims and brighter hopes. Its province is to prevent disease, to detect its earliest approaches, and to check its progress before it has attained that magnitude and definiteness to be of interest to the merely clinical observer. More light is likely to be thrown upon the nature of the changes occurring very early in the diseased state by the Physician who has studied in the laboratory and in the microscope room, than by the Physician who has restricted himself to bedside observation in the wards.

The first will endeavor to ascertain the nature of all those wonderful changes which distinguish the individual suffering—say from a slight cold, which may or may not go on to serious disease, and to interfere with their progress before actual disease is developed. The latter distinguishes with precision the various forms of actual disease, and is proud of diagnosing between certain forms of phthisis, and pneumonia, or pleurisy. The first would devote his powers to very minute investigation. The last is too often led by those who have preceded him cruelly to undervalue such inquiries, and to stubbornly refuse to allow that such careful and delicate inquiry belonged in any way to the physician. Such refinements, in his opinion, are unfitted for the practical healer of disease. Such delicate investigation leads neither to the relief of suffering, nor to the cure of present disease. It is unpractical, useless, at least, to the present generation, and any advantage likely to accrue from it in years to come is doubtful, and so hidden in the distant future that it cannot be appreciated or estimated in our days. This is the sort of argument by which the progress of medical research has been terribly retarded, and especially so in this country, where there are marvellous opportunities and vast means at our disposal for the promotion of medical science. And it is passing strange that eminently intelligent persons who pride themselves upon their practical notions cannot see that of all practical employments most highly useful to mankind that of preventing disease is the most so. But is it not little use to talk about preventing the development of disease while we remain ignorant of the changes which usher it in, and of the earliest alterations which occur in the tissues, and in the blood, which just before were in a perfectly healthy condition?

It has always seemed to me that the transition from the healthy to the diseased state was a subject for investigation of surpassing interest, although of marvellous difficulty, for the sufferers seldom come under our notice until the diseased condition is fully established, while the injury itself is so complex and so difficult that it is not likely to be popular among those who consider the province of the physician strictly limited to the detection and treatment of distinctly developed morbid conditions.

Nor is the question of the nature of disease of professional interest only. The public desires, upon a matter in which all are so

deeply concerned, much information, and many of the most subtle points are not unfrequently adverted to in these days in the public journals. Although it is true very few people in health care much to know the structure of their own bodies, and the changes which are going on in the organism, it is not uncommon to find intelligent persons, suffering from slight and not easily defined ailments, extremely desirous of learning from us exactly what is wrong. How frequently are we subjected to cross-examination, but how seldom, owing to our imperfect knowledge of the minute changes going on in the body, are we able to give explanations altogether satisfactory and clear even to our own understanding. But, nevertheless, is it not at this very time, before the change has proceeded to a sufficient extent to entitle it to be called a *disease*, that our interference might be of the greatest service? Disease may consist in an alteration in the rate at which a tissue lives and grows. If textures, which, in the healthy state, grow very slowly, appropriate nutrient matter with undue rapidity and in unusual quantity, *disease* results. And, in like manner, if the rate at which nutrition goes on be reduced much below the normal standard, the morbid state is developed. In very many cases, the chief difference between a healthy and morbid condition of a given tissue is in the rate at which the nutrient pabulum distributed to it is taken up and appropriated, and in the rate at which the production of formed material proceeds.

In some cases we find the tissues losing the healthy condition during a short time only. For example, the surface of the skin of the body may be affected in such a way that a soft discharging painful sore makes its appearance in place of the normal smooth cuticular surface. The ulcer, however, may soon heal again and the surface be restored to its former perfectly healthy state, the morbid condition perhaps reappearing after a certain time has passed, to be again succeeded by the healing process. And it is remarkable what very slight change in the conditions under which the patient lives seems to determine in such a case the healthy or the morbid action. Is it not therefore important that we should investigate the exact nature of the changes with the aid of the new means modern science has placed at our disposal, for is it not certain that by a thoroughly searching investigation we should find

out by what changes the healthy or morbid state of the skin is determined? The information would probably lead us at once to suggest the right remedial measures. Slight indigestion, sick headache, nervous and muscular pains, depression of spirits, various cutaneous eruptions, which tease many persons for years, are a few of the ailments which would probably be cured if our knowledge of pathological changes was in a satisfactory state, nay, perhaps, if we had but a thorough knowledge of the changes which occur during the healthy condition. In many instances, on the other hand, the morbid change is such that the structure of the part affected is permanently damaged. Should we not therefore make the greatest efforts to learn the exact changes which occur, in the hope that we might discover some means of detecting them sufficiently early to prevent the progress towards an irremediable disease and permanent change of structure?

The very same pathological change will produce very different results as respects the well-being of the organism according to the particular texture affected. The skin and certain parts of the mucous tract are often the seat of pathological actions which need give us no anxiety whatever and which scarcely deserve notice; while, if actions of the very same nature occur in certain parts of the nervous system, they would necessarily lead to changes which must terminate fatally in a short time.

And it is remarkable that the liability of the various tissues and organs to attack should vary greatly. We find that for the most part those textures which are the least likely to be permanently damaged are most easily affected, and suffer first in order, while those which would most probably be destroyed if attacked usually escape, or are at any rate the last to be affected by morbid change. Thus epithelium and connective tissue may be actually destroyed, while adjacent important textures entirely escape, and in internal organs the same fact is noticed. The membranes and the least important textures of the brain are sometimes found damaged by disease, while the brain tissue itself appears to have completely escaped injury. And in inflammation and fever these less important tissues are invariably and often very seriously affected before any influence is exerted upon the more important nerve-cells. Much connective tissue might be completely altered by morbid action,

without the integrity of the organism being in any way impaired, while a comparatively slight degree of change affecting a small portion of the brain tissue might lead to disastrous consequences.

The effect of any particular morbid change upon the general condition of the organism, will depend much upon the state of the body at the time of invasion. If the individual attacked had been perfectly sound previously, his tissues and organs would suffer little compared with those of an organism already altered by disease, or the subject of defective or imperfect development.

Although it is probable that a considerable number of the cases of disease which we meet with occur in persons unsound from birth, it will be better for us in this general sketch to discuss the changes as if they occurred in an organism perfectly sound. We may imagine, what perhaps is in truth the exception, that all the physiological actions of the body are properly carried on up to the time of occurrence of those preliminary phenomena of which the disease we have to deal with is the necessary consequence.

After what has been said it is not necessary to assure the reader that disease is not a substance which is to be weighed or measured, to be isolated or forced out of the organism by driving something else into it; and, indeed, I doubt if the idea that disease was a substantial thing that could be seen, or weighed, or measured, has occurred to the mind of any one living during the last fifty years who has seen or studied the actual condition of the sick. I should not have thought of alluding to such a view had not many writers made a great point of arguing against it. But it is simply a pity that so much space should be occupied now-a-days in scientific Medical works in attempting to dispute with due pomp and circumstance the ghost shadows which seem to have been conjured up for this express purpose, but which have never vexed the the mind of the innocent reader.—*London Med. Times and Gazette.*

THE CELL THEORIES OF HUXLEY AND VIRCHOW.

BY I. N. DANFORTH, M. D., CHICAGO.

THE student who reads the writings of Prof. T. H. Huxley will at once recognize the fact that he is in the presense of a *master* of terse and vigorous composition, as well as of a clear, concise and cogent reasoning; but he will also find himself confronted by the stern necessity of turning his back upon this remarkable author, or else of bidding farewell to all our notions of bygone years regarding vital force. Mr. Huxley does not believe in vital force, as something superadded to and working through matter. He is, moreover, regarded as the "ablest English advocate" of Darwinism, particularly "with reference to its application to the human race, which he believes to be nearly related to the higher apes." His more recent views regarding "Protoplasm, or the Physical Basis of Life," are well known to the medical world, and his doctrines regarding the cell are quite consistent with the "physical" tendency of his faith and philosophy.

Mr. Huxley's first article on the cell, so far as I am aware, was published in the "British and Foreign Medico-Chirurgical Review" for October, 1853. It was very widely read in England, and also to a very considerable extent in this country, but I think its conclusions found little favor on either side of the Atlantic, except that in England they were loudly trumpeted by the "advanced" school of philosophers, whereof Mr. Huxley himself has now come to be the "Head Centre."

In this article, Mr. Huxley adopts to a considerable extent, and expounds at length, the doctrines of C. F. Wolff, first announced in the year 1759; thus rescuing this well-nigh forgotten author from the shades of impending oblivion.

Notwithstanding the intrinsic errors contained in Wolff's theory, it answered well as a sort of stepping-stone to the more recent notions of Huxley, and it is easy to trace the gradual growth of the former into the latter. To Wolff, the cell is a *passive*, not an *active* body; it is a mere cavity formed in and by the "blastema" or surrounded fluid; it possesses no organizing or developmental power, but is itself the visible result of the action of the organizing power inherent in the living mass, or what Wolff calls the *vis essen-*

tialis. For him, however, this *vis essentialis* is no *archæus*, but simply a convenient name for two facts which he takes much trouble to demonstrate: "the first, the existence in living tissues (before any passages are developed in them,) of currents of the nutritious fluid determined to particular parts, by some power which is independent of all external influence; and the second, the peculiar change of form and composition, which take place in the same manner." (Huxley.) Thus far we have the views of Wolff, as expounded and adopted by Mr. Huxley; and thus far we find the cell shorn of all essential power, and reduced to a mere passive body, which owes its existence to the *vis essentialis* resident in the blastema or fluid in which it floats, and of necessity holding its tenure of existence subject to the option of the same power; furthermore this *vis essentialis* is "simply a convenient name" for describing the visible phenomena which take place during the process of organization.

From this basis, Prof. Huxley goes on to complete his theory: *First*, "there is a condition of all kinds of living matter, in which it is an *amorphous germ*—that is, in which its external form depends merely on physical laws, and in which it possesses no internal structure,"—and, "according to the nature of certain previous conditions," will be the future changes or differentiations which this "amorphous germ" shall undergo.

Secondly, the "morphological differentiation may be of three kinds." "In the lowest plants and animals," it is external—that is, concerning the outward shape of the germ, and have nothing to do with the internal structure.

Thirdly, in all other plants and animals the germ "*becomes separated* into a certain portion, which we have called the *endoplast*, and a peripheral portion, the *periplast*"—and the "germ in this case constitutes a vesicle with a central particle, or a nucleated cell." The molecular forces, or "*vis essentialis*," are not localized either in endoplast or periplast; there is no attraction or influence exercised by one over the other; the changes which each subsequently undergo have no connection with each other, but each proceeds "in accordance with the general determining laws of the organism."

Fourthly, "The endoplast grows and divides," but generally "undergoes no other morphological change." "So far from being

the centre of activity of the vital actions, it would appear much rather to be the *less important histological element.*"

Fifthly, the *periplast* (cell-wall, contents, and intercellular substance) "is the subject of all the most important metamorphic processes, whether morphological or chemical, in the animal and plant. By its differentiation, every variety of tissue is produced; and this differentiation is the result, not of any metabolic action of the endoplast," but of molecular changes in its substance under the guiding force of the "*vis essentialis.*"

Sixthly, the metamorphoses of the periplastic substance are twofold—*chemical* and *structural.* The former relate to *conversion*, as of cellulose into xlyogen; or to *deposit*, as of silicia in plants, and calcerous salts in animals. The structural metamorphoses are also two: *vacuolation* or the formation of cavities, as in the intercellular passages of plants, the first vascular canals in animals, and *fibrillation.*

So much for Mr. Huxley's doctrines in 1853. It is noticeable that, at this time, he admitted the existence of a guiding or organizing force—"the *vis essentialis* of Wolff, or the vital forces of the moderns," which, whatever he may have regarded its nature, was certainly to him something superior to and superadded to the ordinary forces resident in matter. It will be seen that in this regard he has essentially modified his views since the date above mentioned. In one particular, however, as Dr. Tyson has pointed out, Mr. Huxley has been misunderstood by some of his critics, especially Prof. Beale—namely, in that he has been represented as saying that the *periplast* is of itself active. If I correctly understand Mr. Huxley, he means that the *periplast* is *acted upon* by the *vis essentialis*; that it is the subject of action, rather than itself the active agent, and, in the light of Prof. Huxley's recent teachings, it is important that this matter be correctly understood.

It is scarcely necessary to enter into a lengthy explanation of the later views of Mr. Huxley, since they have been very generally read by the profession, and are readily accessible to everybody. Briefly, they are as follows: There is an albuminous matter, common to every form of life, whether plant or animal; this matter is "Protoplasm, or the Physical Basis of Life;" it "presents a threefold unity—namely, a unity of power or faculty, a unity of form, and a unity of substantial composition," wherever and whenever

found; this protoplasm or matter of life exists in the form of nucleated cells, variously modified as to form and size to fulfil various functions; plants can "manufacture" fresh protoplasm from its chemical elements, without limit, but animals must obtain it ready-made, and hence, are dependent "in the long run" upon the vegetable world; the protoplasm of one animal may readily be converted or "transubstantiated" into that of any other animal, and this "fact speaks volumes for the general identity of that substance in all living beings."

But Mr. Huxley's views concerning vital action have been most widely and sharply criticised. According to him, there is no mysterious, essential power superadded to the ordinary chemical and molecular forces inherent in protoplasm, which we can call vitality. The phenomena exhibited by it are simply its properties, precisely as the phenomena of water are *its* properties, and we may as philosophically and as truthfully account for the properties of water by ascribing them to a mysterious power and call it "aquosity," as to account for the properties of protoplasm by ascribing them to a like mysterious power and call it "vitality." "What better philosophical status has 'vitality' than 'aquosity'? asks Mr. Huxley—a question, by the way, which it is not difficult to answer. These singular notions were announced in a public lecture in Edinburgh, in November, 1868. Although they have achieved a very wide circulation, they have found few adherents among scientific men, with the exception of the school of so-called "physicists," few in number, by whom they were of course joyfully welcomed. Nor is it probable that time and future investigations will render them more acceptable to the great body of scientists throughout the world.

Among modern observers and writers, no one has exerted a wider influence in the domain of cytology than Prof. Virchow, the eminent pathologist of Berlin. As I have already remarked, his views were, to a considerable extent, anticipated by that most excellent observer, Prof. John Goodsir; although it remained for Prof. Virchow to complete Goodsir's investigations, and place the results thereof in a systematic and accessible form; a work which is very fully and ably accomplished in his "Cellular Pathology," in 1858.

The characteristic views of Virchow in regard to cell growth and cell action, seem to be but little known in this country, notwith-

standing the fact that this book has met with a very extensive sale. I shall therefore attempt to state them briefly.

First, The cell is the only possible starting point for all vital processes, whether morbid or healthy; it is never developed, except from a pre-existing cell—or primarily from the ovum; hence *omne vivum ex ovo* becomes, in its broader signification, *omnis* cellula e cellulâ, and this is equally true of plants and animals; the cell consists essentially of "cell wall," "cell contents," and "nucleus"—the nucleolus not being considered essential. The nucleus is exclusively concerned in the *life* of the cell; upon it depends the maintenance of the present, and development of the future cell; while the cell contents (protoplasm of Huxley; formed material of Beale) are entirely concerned in *function*, as contraction, secretion, etc. With regard to "free cell development," it has, says Virchow, "been almost entirely abandoned, and in support of the correctness of which, not one fact can, with certainty, be adduced." (Cellular Pathology, page 36.) According to this view, the cell is the seat of all physiological and pathological processes, rather than the blood, or the nervous centres; hence the term "cellular pathology," in preference to humoral, neural or solidistic pathology.

Secondly, "Every animal presents itself as a sum of vital unities, every one of which manifests all the characteristics of life." * * * Hence there exists in the body "a kind of social arrangement of parts," wherein a number of "individual existences are mutually dependent, but in such a way that every element (cell) has its own special action, and, even though it derive its stimulus to activity from other parts, yet it alone effects the actual performance of its duties." In following out this conception, Virchow "portions the body out into cell territories," or innumerable minute islets, which are conceivably tributary to, or are "ruled over" by, a cell or cells adjacent. This is more particularly marked in some pathological new formations, consisting largely of intercellular substance, in which the boundaries of the cell districts are very "sharply defined."

Thirdly, The connective tissue corpuscle is not a nucleus alone, as originally stated by Schwann and others, but a complete cell (cell-wall, contents, and nucleus;) this cell is the starting point of all healthy and morbid growth, except such as may be attributed to epithelial origin; from the "proliferation of this cell, result pus, cancer, tubercle, the various tumors, and, indeed, all pathological

new formations, with the exception above-mentioned. Hence these products are not exudations from the blood, but are of local origin—the result of increased or perverted cell-action, expressed by the word "proliferation."

Fourthly, The last and most doubtful feature of Virchow's theory relates to his peculiar system of canals or tubes, resulting from the anastomosis of cells. This is particularly the case with connective tissue cells, concerning which Virchow says, "It may with some degree of certainty be demonstrated, that these anastomoses constitute a peculiar system of tubes or canals which must be classed with the great canalicular system of the body, and which particularly, forming as they do, a supplement to the blood and lymphatic vessels, must be regarded as a new acquisition to our knowledge, and in some sort filling up the vacancy left by the old 'vasa serosa' which do not exist." This reticular arrangement is said to be "possible in cartilage, connective tissue, bone and mucous tissue in the most different parts." (Cellular Pathology, page 76.)

This system of tubuli is also believed to extend to and include the tortuous fibres of the yellow elastic tissue, and the dentinal tubules. But the majority of observers have thus far failed to discover these anastomosing cells, and the resulting tubules, and the doctrine has not been received with general favor, even in Germany. It would seem that a point so important might be easily, speedily, and conclusively settled; but it is extremely difficult, in microscopical investigations, to eliminate the various sources of optical delusion, and decide really what is true and what is false; and in this way, probably, either Virchow or his opponents have been grossly deceived.

Prof. L. S. Beale is a decided disbeliever in the existence of these tubules, and his statements are always entitled to great credence But, considered in their entirety, the teachings of Virchow are vastly important in their relations to pathology Whatever their ultimate value may prove to be as regards the establishment of new facts, and the enlargement of the bounds of our knowledge, this much is certain: the labors of Virchow have established a new order of things in regard to care and painstaking accuracy in prosecuting minute investigations; conclusions are less hastily jumped at; crude and silly theories are less frequently spawned upon the world; and the whole tendency of histological inquiry has changed

for the better, in that more of care, more of accuracy, and more of close and thoughtful study have been infused into the labors of observers everywhere, since the methodical writings of Virchow have become the common property of the profession.—*Chicago Med. Journal.*

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

A TREATISE ON THE THEORY AND PRACTICE OF OBSTETRICS. By Wm H. Byford, A. M., M. D., Professor of Obstetrics and Diseases of Women and Children in the Chicago Medical College, etc., etc., etc. New York: Wm. Wood & Co. 1870.

DR. BYFORD presents us with a "concise" statement of "all the practical information necessary to give the student and 'busy practitioner' in the acquirement and exercise of this important branch of our art," avoiding all disputed points of doctrine and extensive quotations, as "incompatible with conciseness and comprehensiveness." At least so says the preface. A statement which is very fairly realized in the body of the book.

Dwelling in the ordinary manner, and with ordinary clearness, with nothing specially valuable to add, on the dimensions and structure of the pelvis, the diameters of the fœtal head, "female organs of generation," &c., &c., we are not tempted to linger, nor are we conscious of any special profit from our reading, until we arrive at the chapter on "anæsthetics in labor," and here we are tempted to pause rather to express our disapprobation than to acquire much information. This important subject, as yet by no means disposed of to the satisfaction of obstetric practitioners, is dismissed with but little more than a page; a page too, rather more remarkable for conciseness than clearness, and with but little of the "gesture of authority" in it. "I think," says our Author, "the members of our profession are almost unanimous in sanctioning the use of anæsthetics in natural cases of labor." Surely this is too broad a statement, and it may well be questioned whether one-fourth of the profession does favor their use, except in remarkable cases, such as may be called cases of unnatural labor. We are also told that they "*sometimes* act beneficially in every respect, but at *other times* their influence is attended with unpleasant effects in other particulars." This is a very modest statement of the case indeed, and one with which but few persons will be found to differ; but we should really feel under greater obligation to Dr.

Byford if, in addition to this not very pungent observation, he had given us some idea of the class of cases in which this entirely good effect might be anticipated, or more particularly, where the ill effect was to be looked for and avoided.

The most frequent "ill effect" when, "given in moderation is to lessen the efficiency of the pains, and when given too freely I think they generally do this," sometimes prolonging the labor very considerably; less frequently delirium is occasioned, making the patient unmanageable unless kept "too strongly" under its influence; nausea and vomiting are also increased by it, but our Author thinks these are "inconveniences that will not weigh much in the question as to the general propriety of their use, as they may be obviated by proper management." Here again we might be more grateful for a few practical hints as to what, in Dr. Byford's judgment constitutes "proper management," the only suggestion offered is to pour fifteen or twenty drops of chloroform on a handkerchief and "give it to the patient, letting her apply it to the nostrils." We apprehend the "unpleasant effect in some particulars," may occasionly be produced with even this "proper management." After all, is not this mere folly, this everlasting talk about "proper management" being a guarantee for the avoidance of the unpleasant effect of chloroform? Must not a remedy of such power, under any management, occasionally have an ill effect, and should we not recognize this fact clearly, and learn therefrom to avoid its use except in cases of peculiar difficulty or excessive pain?

We entirely agree with Dr. Byford that in cases of peculiar difficulty, the obligation to use it is as great as in any surgical operation, "and for all the same reasons," but only in such cases. Dr. Byford prefers sulphuric ether, except in cases where it is known to have an unpleasant effect, generally witholding it until "after the first stage is over," and increasing the quantity after the soft parts become distended by the head. Dr. Storer, of Massachusetts, who also favors the use of anæsthetics in all obstetric cases, prefers chloroform, which he considers less dangerous than either sulphuric ether, chloric ether, or a mixture of chloroform with either of these agents.

Dr. Storer is most unqualified in his commendation of anæthesia in labor, whether it is a "rapid one or no, or whether the patient had or had not organic disease of the heart or lungs," and con-

siders that in so doing the risk to both mother and child is lessened through the "relaxation of voluntary muscles affected by the anæsthetic." He also states that he has "an incontrovertible statement of deaths from sulphuric ether here in this city, (Boston), so detailed and presented as to warrant the assertion that, in proportion to the number of instances of their respective use in the world, and even throwing entirely out of the question the point of comparative subsequent injury to the health, * * * * the inhalation of sulphuric ether for anæsthetic purposes is in reality more deadly and unsafe than that of chloroform." With but little experience in the obstetric use of anæsthetics, we are of course disqualified from expressing an authoritative opinion; but in our judgment the constant and unrestrained use of these agents in obstetric practice is vicious in its results and wholly unjustifiable, but when occasion requires the use of an anæsthetic, our preference would be given to chloroform. We doubt not both are very useful obstetric aids, and may be substituted for one another when necessary, with perfect impunity and without incurring additional risk, whichever may be the substitute. Chloroform is, however, administered with more facility, is usually less disagreeable to the patient, its effects are more speedily induced, and it is less likely to occasion muscular excitement.

We pass hastily on to a very interesting section on "attentions to the child," which presents some interesting suggestions, clearly and well put, of practical interest, though apparently relating to very simple matters. Dr. Byford recommends that the cord be "covered longitudinally with soft linen, and then rolled in soft tape," commencing at the umbilical extremity and terminating at the free extremity, where it may be secured by a thread." He objects earnestly to the use of all tight bandaging or clothing as subserving no conceivable purpose, and as "merely impeding respiration and circulation;" the old time-honored belly band is dismissed without ceremony, and we shall not stretch forth a hand to stay it; all the clothing then should be loose, soft and warm, when the child may be said to be "rationally dressed." Our Author is also of the opinion, and we entirely agree with him, that nothing should be given the child but the breast, and that all vile compounds concocted by overzealous nurses and friends should be strictly forbidden. The mother is also profited by the early application of the child to the

breast, inducing the "gradual and early secretion of milk," and preventing thereby the "sudden congestion of the breasts that gives rise to milk fever, and is not unfrequently followed by inflammation of the glands." The condition of apnœa, referable to several causes, but generally treated as though there was but one, is spoken of with discriminating judgment. It has been too much the habit to treat this condition at all times with applications of cold or hot water and by artificial respiration, without in the least discriminating its causal relations. Dr. Byford points out three conditions readily distinguishable the one from the other, and for the relief of which entirely different plans of treatment are suggested.

The first of these depends on a congested state of the brain, in which the "blood-vessels are turgid and strongly injected with blood"—a condition characterized by a face "bloated and discolored with blood," prominent eyes, misshapen skull, and "scalp almost black with blood unoxygenated." It is caused by long continued and excessive pressure, with or without instruments, and is to be treated by blood-letting to the amount of half an ounce or an ounce, warm foot-bath, and cold applications to the head, with stimulating aperients by enemata, and artificial respiration when these fail. The second condition is the reverse of that just described, and is called "syncopal." The symptoms are extreme pallor, open mouth, the eyes are not prominent, and the heart beats, if at all, but feebly. The cause is "more or less complete separation of the placenta" or "rupture of the cord," with consequent loss of blood. The treatment here is warm blankets, low position of the head, and artificial respiration performed with as little physical disturbance as possible. Dry heat, perfect quiet, without dressing for "twenty-four hours," and, as animation is restored, two or three drops of aromatic ammonia in breast milk every two hours should continue the treatment.

"Apnœa by interruption of the circulation is another condition of still-born infants," characterized by lividity of surface, discoloration of the scalp and face, as great as the condition first described, but accompanied by distortion of the head. It is due to compression of the cord during delivery, and is to be treated with friction, warmth, artificial respiration and turpentine enemata.

"Then there are a large number of cases that cannot be traced to any of these conditions, in which the child seems vigorous, but does not breathe." The color of the surface is in these cases everywhere natural, the child is well formed and plump, the head is not misshapen and bears no trace of undue pressure, the temperature is good, but the child does not breathe; it is without reflex sensibility, the cold air does not prompt the respiratory act, and consequently the circulation gradually ceases." The remedies here are such as will arouse reflex sensibility, dashing cold water upon the surface at intervals of a half minute, or "still better dip the body in a bath of about one hundred degrees Fahrenheit, for forty to sixty seconds, and then throwing over the entire surface with a forcible dash, a pint or more of cold water, and the application of artificial respiration.

Still another condition is described, termed "asthenia," in which the child is small, flabby, of feeble circulation, sallow color, with general weakness of all the powers of life, consequent upon imperfect development. These cases are to be treated with dry heat, friction, artificial respiration, and diffusible stimulants.

The method of artificial respiration preferred by our Author consists in the adjustment of a compress beneath the neck so that the "head may hang over backwards," putting the larynx on the stretch and compressing the aesophagus. The operator then lays a cambric handkerchief over the mouth of the babe, and closing its nostrils with one hand forces the air into the lungs, which is then gently expelled by pressing upon the chest, repeating this operation as often as ten or twelve times in a minute.

These conditions are we think better discriminated, more clearly described, and better treated than we ever remember to have seen them before. Cumbered by no tedious enumeration of symptoms not characteristic, each condition is described with a conciseness and definiteness that leaves nothing to be desired, and renders unpardonable a failure to clearly distinguish them. Dr. Byford has added something to the literature of this subject. F. S. L.

A TREATISE OF PHYSIOLOGY AND HYGIENE: For Educational Institutions and General Readers. Fully Illustrated. By Joseph C. Hutchison, M. D., etc., etc., New York. Clark & Maynard, Publishers, 1870.

THIS work, as indicated by the title page, is intended chiefly for the use of schools. The author has performed the task of compi-

lation with judgment and fidelity, and the publishers have presented the work in a neat and tasteful manner. The illustrations are much better than we usually find in books of a similar character.

THE MEDICAL ADVISER: A full and plain Treatise on the Theory and Practice of Medicine, especially adapted to family use. By Rezin Thompson, M. D., Permanent Member of The American Medical Association, etc., National Publishing Company, Cincinnati, O., and Memphis, Tenn. Jones, Junkin & Co., Chicago, Ill., 1870.

THE author of this work, "having been many years engaged in observing and treating disease, and ever watchful for any developments which might throw new light upon its nature, or lead to a better or safer treatment, came to the conclusion that he had made some progress. * * * * Finally he published a little book. * * * * Quite a number of farmers and others, not of the profession, obtained the work, and had been enabled to manage their own cases of fever, pneumonia, dysentery, etc., very successfully." But, unfortunately, the "little book" was yet "not quite plain enough to suit the common reader," and the author, being importuned by *partial* friends—specially by one, "who had devoted much of his life to disseminating family medical works among the people," came to the conclusion "that he possessed the peculiar qualifications necessary," and thereupon "entered into the mines himself, dug up the primal formations, smelted the ores, threw away the dross, and preserved only the pure gold," which he here presents us, compassed in the space of a thousand pages, ornate with a rhetoric that will "pay by the enlargement of your ideas and the improvement of your style, if that is not already good."

The whole work is characterized by an egotism that is disgusting, by grave errors, and by an array of symptoms and disorders that we feel sure are amply sufficient to puzzle any "heads of families" that may seek herein the medical information that is to restore health. H.

THE PHYSICAL LIFE OF WOMAN: Advice to the Maiden, Wife, and Mother. By Geo. H. Napheys, A. M., M. D., etc., etc. Fiftieth Thousand, Enlarged and Revised. George Maclean, Philadelphia, New York, and Boston; E. Hannaford & Co., Cincinnati and Chicago, 1870.

FROM the long array of testimonials from eminent physicians and divines prefixed to this volume, and the sounding preface of the author, we are led to expect something "novel" and "daring."

Its claim to novelty is well founded in several of its chapters. It may be "daring" in its author to risk reputation on so flimsy a structure. The advice given to woman, as maiden, wife, and mother, is of doubtful propriety, and but little calculated to aid her in these phases of her existence. We can see no good likely to arise from the publication of such works, and are decidedly of opinion that they but pander to a morbid curiosity. The style is florid, and the whole character of the book sensational. H.

MISCELLANEOUS.

The Pathology of Cerebral Hemorrhage.—Charcot and Bouchard, examining the causes to which cerebral hemorrhages are usually referred, find that they may be arranged in three groups: (1) Diminution of the consistence of cerebral tissue to such a degree that it does not furnish sufficient support to the vessels; (2) Increased tension of the blood, depending on hypertrophy of the left ventricle, atrophy of the kidneys, &c.; (3) Diminished resistance of the vessel in consequence of change in the walls (fatty degeneration or atheromatous incrustation.)

Some of these (as hemorrhagic *ramollissement*, for example,) are doubtful; others appear to be only accessory. This the authors find, with regard to arterial atheroma, that it is not present in twenty-two per cent. of cases, and that it is only present in a marked degree in twenty-five per cent. Again, hypertrophy of the heart was not present in forty per cent. of cases. These statistics are founded on examination of sixty-nine cases. The only pathological condition which MM. Charcot and Bouchard have constantly met is an aneurismal state of a certain number of the small intra-cerebral vessels. From the small size of these aneurisms the authors give them the name of miliary aneurisms. They are visible to the naked eye. They appear as small globular grains, varying in diameter from two-tenths of a millimètre to a millimètre, and sometimes a little larger. If they contain liquid blood, their color is red or violet; if, on the other hand, the blood is concreted or has undergone transformation, the aneurism is red-brown, ochry, or even blackish. The color is so influenced by the variable thickness of the wall. The optic thalami, the corpora striata, the convolutions, the pons, the cerebellum, the centrum ovale, the middle peduncles of the cerebellum, the cerebral peduncles, the medulla oblongata, are the parts in order of frequency where these aneurismal dilatations have been most frequently met by the authors.

This distribution, they remark, agrees with that of cerebral hemorrhages. Seen under the microscope with a low power, the

vessels present a fusiform or sacciform dilatation. With a higher power it is seen that the wall of the aneurism is continuous with the tunics of the vessel which is its seat, but the three tunics are not distinct, they are fused, and the thickness of the aneurismal wall is less than that of the three normal coats of the vessel, a fact which accounts for their proneness to rupture. Careful observation of the aneurismal vessel reveals alteration of structure (*arterite sclé-reuse*). This change proceeds from without inwards, for the most considerate changes have their seat in the outer parts of the vessel, and the atrophy of the muscular coat depends on change in the adventitious tunic—whence the name periarteritis which they propose for it.—*Half-Yearly Abstract.*

The Germ Theory of Disease.—Dr. Charlton Bastian, in a long letter to the "Times" of a recent date, takes exception to the statements made by Professor Tyndall in support of the germ theory of disease. He has been engaged for some time in the investigation of the subject, and soon came to the conclusion that organisms were to be met with in hermetically sealed vessels, from which all air had been removed, and after the contained fluids had been raised to a very high temperature. He observed other facts opposed to the conclusions drawn by Professor Lister, Professor Tyndall, and others, in favor of the germ theory. Assisted by Professor Frankland, solutions containing organic matter and other ingredients were prepared in the following manner: After a perfect vacuum above the level of the fluid has been procured in the glass vessel, by means of Sprengel's air-pump, the drawn-out necks of the flasks were closed by means of the blow-pipe flame. The airless flasks containing then the fluid itself as the only possible germ-containing material, were submitted, in a suitable apparatus, by Professor Frankland to a temperature varying from 148° C. to 152° C. for four hours, and yet, after having been placed under the influence of suitable conditions, in the course of a few weeks living organisms—many of them altogether new and strange—were found in these fluids. He abstains from mentioning all details as to the nature of the materials used, and many interesting facts observed by him in his experiments, as he hopes soon to lay a full account of his researches on the subject before the Royal Society. In the meantime, he asks Professor Tyndall to suspend his judgment on

the germ theory of disease, and not to inspire the public generally with a belief in such theories, when these are dependent upon very doubtful evidence.—*Brit. Med. Jour. and Med. Gazette.*

Chloral in Asthmatic Bronchitis.—Dr. Caspar Morris says he was recently in attendance upon a lady who suffers from frequently recurring attacks of bronchitis, with asthma. The skin was hot, the frequency and difficulty of respiration very great, the râles loud and musical, and the secretion very profuse, so that the mucus could be poured from the cup in an abundant, ropy stream. His attention had been arrested by the account recently published of the hydrate of chloral, and as she had not been relieved by any remedy which he had previously tried, except to a slight degree by chloric ether, it occurred to him that the chloral might be of service. He ordered five grains in one fluidrachm of the syrup of lactucarium of Aubergier, to be repeated in two hours if required. The two doses afforded entire relief; and she has found great comfort since from a single dose taken at bedtime; a good night's rest being secured by it. He mentions it as a valuable aid in the treatment of this intractable and distressing disease —*American Journal of Medical Science.*

Regeneration of Nerve Tissue.—Voit has recently proved the reproduction of the cerebral tissue in the pigeon, and the coincidence of this reproduction with almost complete renewal of the cephalic functions. MM. Masius and Van Laer, professors in the University of Liege, deduce from recent experiments—detailed at length in a late number of the "Monthly Microscopical Journal" —that the spinal cord in the frog can recover rapidly a loss of substance which has taken place in its own tissues, and repair its primitive anatomical and physiological properties.—*British Medical Journal.*

EDITORIAL.

WITH the opening of the medical schools and the ingathering of medical students, anxiously but hopelessly beginning a career that for many of them is equivalent to

> Searching the treeless crags and rocks among,
> For fruits of light,

it will be appropriate to indulge in some speculation upon the subject of medical education, a theme already set in many lights by various minds; but about which much has yet to be learned, if we may at last find a teacher competent to resolve the knotty problem of how to communicate knowledge and sound judgment to incapacity. For after all is not the prime difficulty the low grade of intelligence of the generality of medical students, or, if not inferior intelligence, is not the ignorance that envelopes them like a cloud, as difficult, or nearly so, to overcome as to invest with superior faculties the imbecile? How may a knowledge of the most obscure subject which can engage the mind of man be communicated to those who have not yet acquired so much intellectual vision as goes to the perception of a difficulty? As yet unacquainted with the alphabet of science, unconscious of the fact that there even exists such an alphabet, the major part of a medical class may be likened to a child listening to a foreign language, who, perhaps, has caught some fragmentary phrases here and there from a chattering nurse, meaningless in themselves, and affording no possible insight into a well ordered conversation in the same tongue, however simple the theme. The very language of a medical lecture is a dead language to them; and the ideas, though they understood the language, are as obscure to them as the sun to one blind from infancy. What qualification in teachers, what facility offered by schools, can overcome

WE notice in some of the English papers frequent mention of the American ambulance in the French army, under the charge of Dr. Sims. Drs. Tilghman and May, of Baltimore, are attached to it, and are giving efficient service in the care of the wounded. A correspondent of the "London Telegraph" speaks of Dr. May being sent under peculiar circumstances to show a French surgeon the mode of application of Prof. N. R. Smith's anterior splint.

THE first number of "The Medical Times," published by J. B. Lippincott & Co., Philadelphia, comes to us full of promise. We give it a cordial welcome to our exchange list.

BOOKS, PAMPHLETS, ETC., RECEIVED.

From the publishers:

THE MEDICAL ADVISER: A FULL AND PLAIN TREATISE ON THE THEORY AND PRACTICE OF MEDICINE, ESPECIALLY ADAPTED TO FAMILY USE. By Rezin Thompson, M. D., etc. National Publishing Company, Cincinnati, Ohio, and Memphis, Tenn. Jones, Junkin & Co., Chicago, Ill. 1870.

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THE RAISING AND EDUCATION OF ABANDONED CHILDREN IN EUROPE. By Abraham Jacobi, M. D., New York.

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CONSTITUTION AND BY-LAWS OF THE MEDICAL SOCIETY OF THE DISTRICT OF COLUMBIA. Washington.

THE
Baltimore Medical Journal,
A MONTHLY RECORD OF
MEDICINE AND SURGERY.

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ORIGINAL COMMUNICATIONS.

IRRITATION.

BY PROFESSOR N. R. SMITH.

IT is surprising how little attention in the various recent works on surgery is given to the subject of irritation. In Paget's admirable work on Surgical Pathology, we find no chapter devoted to it. In Prof. Gross' very elaborate and learned work, "What is Irritation?" he says: "Is it an entity, or a mere myth, a certain undefinable something which no one can see, but, which any one may recognize by its effects?"

I will here remark, that irritation is no more a myth than is inflammation, which is equally difficult of definition. It consists of certain morbid phenomena, which, like those of inflammation, are the effects of a nocent cause, and it is characterized by phenomena which are as striking and characteristic as those of inflammation. We might as well term typhoid fever a myth.

The most elaborate and satisfactory treatise on irritation

is that of Travers, published near half a century ago. It is not, however, so satisfactory at this period of pathological progress. The author embraces far too much under this appellation. He embraced under it, for instance, pyæmia, or, as it is now termed by some, icorrhemia, by others *septicemia*. He regarded this form of disease as a form of constitutional irritation. He might, with equal propriety, have regarded any form of fever or constitutional disease, as a form of constitutional irritation.

There are certain vital properties resident in all living tissues (sensibility and contractility.) These are capable of being morbidly impressed by various agents from without or within, and the morbid phenomena resulting constitute irritation. If these phenomena persist, they become merged in inflammation, bnt not necessarily. Irritation is the first element, the "punctum saliens" of disease. It is the essential antecedent to congestion, inflammation, spasm, and indeed all morbid actions, and the remote cause of all structural changes.

Irritation is either local, sympathetic, or constitutional. Local irritation is confined to the part irritated,—neither affecting any other organ, nor disturbing the system generally. Sympathetic irritation is that which is transferred through the nervous system from the part first impressed to some other organ or tissue, but, still not disturbing the general functions. Constitutional irritation is that in which the whole system feels the shock, and the general functions are disturbed.

In discussing this subject I shall chiefly restrict myself to its surgical relations.

Local Irritation.—The causes of local irritation are as numerous as are the agents in nature, which are capable of impressing the vital properties of the system. Many of them are such as in normal degree, cause only healthy excitement, such as light, heat, the atmosphere, the various

substances which exercise the sense of touch, of taste or of smelling. Others, also, there are which affect only the organic properties, and are not appreciated by the senses.

The causes which produce the form of local irritation, which most interests the surgeon, are the contact of sharp, hard, rough surfaces. Whatever hurts causes irritation though it may disappear on the removal of the cause.

The effect will greatly depend on the character of the part impressed. A substance which on the general surface is not felt, produces intense irritation in the eye, the ear, the nostrils, &c.

All wounds, fractures, contusions, &c., produce irritation —local if restricted to the part injured.

There are many substances in nature possessing acrid and stimulating qualities of peculiar character, which cause local irritation, such as mustard, the various essential oils, poisonous plants, &c.

The venom of various insects and reptiles is the cause of intense irritation. Specific irritants will not at present claim our attention. Irritation is often set up in a part without obvious cause. The morbid sensation of itching is an instance, generally (although at times intensely annoying) passing away without results, but sometimes resulting in congestion and inflammation.

Symptoms of Local Irritation.—The most remarkable of the phenomena of local irritation is pain. Animal sensibility is conferred upon the surface, and especially upon certain portions of it, to announce to the system the contact of any agent which threatens it with injury. The character of the pain is modified by that of the agent causing it, and of the part which is the seat of it. It may be a sense of burning, of itching, or rending, or a lancinating pain, or smarting, or stinging. These sensations precede for a variable period the occurrence of hyperæmia, but are not necessarily productive of it. The pain which

attends an accidental cut or a surgical operation, and which is best described by the term smarting, is characteristic of a period of irritation. It may be very intense without passing into inflammation. Irritation is always present where pain exists, and, indeed, as employed by some, the terms are convertible. The degree of irritation is generally measured by the amount of pain.

Another and striking character of irritation is spasm. This is the result of the action of an irritant upon muscular fibre, the remarkable property of which is contractility. The puncturing of a muscle causes involuntary contraction. Excessive exercise of a muscle often causes irritation. This is illustrated in the painful cramps which occur in the muscles of the legs, at night, after unusual exercise of those organs. In amputations the muscles are observed to quiver and contract under the knife. Piercing a muscle with a needle causes spasm.

The production of violent spasm from local hurt is very conspicuous in the occurrence of dislocations. When the external violence which is concerned, acting on the bone as a lever, has lacerated the capsule, and prized the head of the bone from the articulating cavity, certain muscles which are stretehed and hurt by the unusual distortion are provoked to involuntary resistance. They instinctively contract—are seized with violent cramp, in other words—and complete the displacement.

Another symptom of irritation is interruption or disorder of function. The eye, irritated by a foreign substance, abandons its office by involuntary closure. The sense of touch is impaired by anything which painfully impresses it. A muscle affected by spasm from irritation no longer obeys the will. Blows inflicted upon the eye produce scintillations—a morbid and false perception of light. Irritation of the ear, caused by foreign substances in the meatus, or by blows over the ear, which cause the air in the meatus

to violently impress the tympanum, cause tinnitus and temporary deafness.

The irritation of a gland, or its duct, causes excessive secretion, and generally a modification of its character. Tears secreted copiously from the irritated lachrymal gland are often acrid and scalding.

The first effect of severe irritation upon the capillaries, and minute vessels of the surface, is the interruption of the circulation in the part. In the application of the actual cautery I have distinctlv seen the blood to recede from the surrounding integument, rendering it strikingly pale for a brief period.

Dr. Copland correctly states that "whatever may be the function of a part, such function will be exalted by a moderate irritant, but it will be disordered or even overturned altogether by an excessive one." Errors are committed in regard to the phenomena of simple irritation, of which we are now treating, by confounding them with those of hyperæmia, which in most instances quickly supervene upon the former.

Results, or Terminations of Irritation.—Irritation excited in a healthy part often ceases on the removal of the cause, without any organic results. The pain or spasm caused by the contact of a sharp or rough surface with a sensitive part, ceases when the agent is removed. This result is promoted by the repose of the organ, and by such treatment as we shall indicate. This result corresponds to that of resolution in inflammation. The functions disturbed are presently resumed.

Local irritation may terminate in sympathetic irritation, that is, in being transferred by the nervous system to some other—perhaps remote—part by continuous propagation or by reflex action. This may result without the production of inflammation. The primary irritation may cease,

and the secondary remain, as the diseased condition demanding attention.

In the irritation inflicted by calculus of the bladder, the most constant symptom is severe pain in the glans penis.

Spasm of the urethra and sphincter of the bladder is a common result of irritation of the anus and rectum.

[TO BE CONTINUED.]

A "SPEEDY METHOD" IN ASPHYXIA.

BY HARVEY L. BYRD, M. D.,
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THERE are few offices or duties of more importance to humanity, or trying to the practitioner, than those which pertain to the lying-in apartment; therefore, he who assumes their exercise should be fully conscious of their gravity, and keep both his heart and mind alive to their requirements and obligations. It is not enough that all the available learning and experience of our predecessors and contemporaries should be in our possession, and in readiness for any and every emergency that might arise in a case of parturition; but the senses should be so alert that instant cognizance may be had of every occurrence and circumstance transpiring in the lying-in chamber. Even in the practice of the utmost vigilance and attention, failure to accomplish everything that is desired, or expected of us, sometimes occurs, and we are left to mingle our shortcomings and regrets, with earnest hopes for greater skill and success in future practice. Of the long catalogue of phenomena and accidents, incidental to the lying-in chamber, there are very few indeed of greater moment than the *absence of respiration in the infant at the proper time!*

The child is liable to be asphyxiated from a variety of causes, and the properly qualified obstetrician will weigh

well every abnormal state or unusual circumstance occurring during labor, likely to result in this critical and dangerous condition to the infant, and be prepared promptly to meet the emergency should it arise. On the announcement to the profession some years ago, of Dr. Marshall Hall's "Ready Method" in Asphyxia and its practical application in one or two cases, the writer thought that there was but little, if any, further addition necessary to the list of remedial agents in the asphyxia of newly born infants. Later experience, however, with this, and subsequently published "Methods," proved that, occasionally, at least, all the known appliances were futile, and further knowledge required to secure success in this dangerous condition of the infant. The following "method," it is believed, will be found a valuable, if not the most important addition to our list of appliances in the asphyxia of children; and probably also, for the relief of that condition in the adult, when properly applied.

The procedure is easy of accomplishment, requiring no preliminary arrangement or preparation for its application, but may be put into execution the instant the condition of the child may demand it. It is as follows: bring the *ulnar sides* of the hands together, with the palmar surfaces looking vertically, then prop them beneath the back of the infant, so that the extended thumbs may aid as far as possible in sustaining the vertex and inferior extremities. Then *keeping the ulnar* borders of the hands in contact, so as to form a *fulcrum*, the radial borders or sides are simultaneously depresssd to as great an extent as practicable—say forty-five degrees—*below* the horizontal line, and then gradually elevated or pronated to as many degrees *above* that line, thus facilitating the escape of air drawn into the lungs during the downward movement of the head and chest. These movements, performed in a regular and gentle manner, and repeated at proper intervals, seldom fail in

the establishment of respiration where it is possible of accomplishment. A little cold water dashed upon the epigastrium during the *descent* of the head and chest, will hasten respiration, where the first few movements fail in its establishment. It is important that the head be kept, as far as practicable, from too much *lateral* movement, and not permitted to depart considerably from its *antero-posterior* axis with the vertebral column during the continuance of the process. To this end, in a critical case, the hands of an assistant must be brought into requisition, as related in the case below. The importance of these remarks will be apparent to intelligent readers on a moment's reflection.



POSITION OF CHILD, NO. 1.

No impediment should be *permitted* in the way of *free entrance* of air into the lungs during the *downward* movement of the head, nor is it *scarcely less important* that *no obstruction* should oppose the escape of air during the *upward* movement of the head and chest! The philosophy of the "Method" will be easily comprehended by a glance at the accompanying cuts.



POSITION OF CHILD, NO. 2.



POSITION OF CHILD, NO. 3.

A nurse or other intelligent attendant can be made to understand the movements, so as to continue them, should the condition of the mother demand the

attention of the accoucher. Would not the above rules apply to the treatment of asphyxiated persons of any age? Could not the body of a drowned person, for example, be placed on its back, transversely, across the trunk of a fallen tree, or other sufficiently elevated substance, and, by the aid of two or three persons, subjected to the movements we have described, with a reasonable hope of resuscitation?

The following case will serve as an illustration of the great value of the "speedy method" in the asphyxia of newly born infants. Some months since the writer was requested to see a patient with Dr. S. K. Coleman, an intelligent young physician of this city; the party was found to be a strong, healthy young woman of thirty years, in labor with her first child. The labor had continued about *fifty* hours, which naturally enough had greatly exhausted her energies. No pulsation of the fœtal heart could be detected, though Dr. Coleman stated he heard it an hour or two previously. The forceps was applied, and a large, well developed female infant delivered in a completely asphyxiated condition. The funis was left uncut, and placed in a situation to allow no mechanical obstruction to its vessels, and efforts resorted to at once for the purpose of establishing respiration. During the succeeding *sixty* minutes, it may be safely stated that all the usual methods and appliances were resorted to that could with propriety be put into practice within that period of time after delivery without accomplishing the desired object. At this juncture, when almost all hope of success had departed, Dr. Coleman was requested to place his hands in the first described position. The infant was laid upon them; then passing my hands beneath, and extending their radial margins somewhat beyond his, so as to give additional support to the vertex and inferior limbs, the above described depressions and elevations of the extremities of the infant began. The completed movement afforded the first unmistakable evidence of respira-

tion, the hour's anxious efforts produced. The movements were continued at such intervals as our judgment indicated, and in less than *three* minutes after their commencement, the child feebly cried. With the exception of an unusually elongated head, due to its protracted birth, the child, an hour later, presented no marked deviation or departure from what we are accustomed to observe in newly born infants, and it is now perfectly healthy and strong. This case being an extraordinary one in several respects, is mentioned as affording conclusive evidence of the great value of the "speedy method." Other cases might be mentioned, were it deemed necessary to protract this article, which would go far to the proof that it is *par excellence*, the remedy in the asphyxia of newly born infants. It is not thought important to designate any number of movements, or the intervals to be observed in their practice, as they will both suggest themselves to the intelligent practitioner in each individual case.

Since the foregoing article was written and ready for publication, my friend, Dr. Coleman, informs me he has successfully applied the speedy method to a boy seven or eight years old, who had fallen into one of the city docks, and was completely asphyxiated when removed from the water several minutes after. Three or four men were called to his assistance, when, putting into execution the process he witnessed with so much satisfaction in the asphyxiated infant mentioned in the text, the boy was resuscitated without difficulty in a very few minutes, thus demonstrating the efficacy of the *speedy method* in cases of drowning.

NOTES ON OLD AGE.

BY S. C. CHEW, M. D.,
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THE following case is reported not on account of any peculiar interest attaching to its pathology or to the treatment instituted, but because it shows, by such an instance as cannot often be met with, the remarkable integrity which the organism may maintain to a period far exceeding the usual duration of human life, and the readiness also with which therapeutic measures may be responded to even at that period.

On the 22d of August, 1870, I was called to see an aged lady, suffering with severe dysury, which had lasted for several days, the efforts at micturition being very frequent and attended at times with acute pain. The symptoms presented were the usual sensations of burning at the neck of the bladder and urethra, with expulsive efforts sometimes so violent in character as to resemble those of labor. The urine was very high-colored, and although the quantity passed at any one time was scanty, yet the aggregate amount throughout the day was nearly normal.

The patient was directed to take three times a day 15 grains of bicarbonate of potassa in solution, with the addition of 10 minims of tincture of belladonna to each dose.

On the following day the pain was very much alleviated, and as the urine was alkaline in reaction, the potassa was withdrawn; the tincture of belladonna being continued on account of the slight vesical irritability that remained. An enema containing 30 drops of laudanum was also ordered at bedtime.

The action of belladonna in such cases is due, no doubt, to its coming into direct contact with the seat of irritation; for Dr. Harley has shown that atropia is eliminated from the

system entirely by the kidneys. A few drops of the urine impregnated with it will dilate the the pupil as fully as the same number of drops from an equal bulk of water, to which the dose of atropia has been added.

Dr. Harley goes so far indeed as to express the opinion, that belladonna is in the truest sense of the word, a diuretic; and perhaps more powerful than any other that we possess.

Dr. Garrod, moreover, has observed that the carbonates of the alkalies have no decomposing influence upon atropia.

Under this treatment the patient has done well; slight dysury occasionally recurring, but not of the violent character formerly observed.

This case, as thus stated, would seem to present no special point worthy of record; for similar ones are often encountered, and found to yield to a like treatment. It assumes an interest, however, which it would not otherwise possess, when it is considered that the patient is within a few months of completing her 97th year, having been born on the 13th of January, 1774, and thus having seen every decade of a century.

The real interest of the case is rather of a physiological than a pathological character; it does not arise from the comparatively slight and easily corrected aberration from normal function in one organ, but from the regularity and harmony of health which prevail in all other parts of the body, after nearly a century of functional activity.

I have made careful examinations and inquiries in regard to the general physiological condition of this patient, because opportunities are seldom presented to physicians of observing the working of the economy at such an advanced period of life.

Suppose a given number of persons to have attained the age of 70, and let the twenty years succeeding to that age be divided into periods of five years each; it will be found that deaths occur in greatly increased proportion in each of

these successive lustra as compared with the one immediately preceding. By reference to the Carlisle tables it is seen that out of 10,000 persons born, 2,401 may be expected to survive until 70; 1,675 until 75; 953 until 80; 445 until 85; 142 until 90; only 30 until 95, and of these 12 will die in the succeeding two years, leaving but 18 to touch the remote goal at which our patient has arrived. The dearment is thus seen to go on with immense rapidity among nonagenarians, so that while it is not very unusual to meet with persons of 90 years of age, those who attain to 97 are exceedingly few. The arches of the Bridge of Human Life, in Mirza's vision, were all in ruins beyond the seventieth, though some persons continued a kind of hobbling march on those that were broken, but fell through one after another, tired and spent with so long a walk.

Careful examination of the various functions of the body fails in this case to elicit any positive evidence of departure from the normal physiological condition. The tripod of life seems intact in each of its three supports. Nutrition is duly accomplished, the appetite being good, and digestion easy. It is worth noting in this connection that the patient is now and has been all her life in the habit of drinking coffee freely twice a day. The nervous centres have never been disturbed in their functions; sight is good, and hearing scarcely at all impaired: the mental faculties retain their activity; even the memory, which usually shows the earliest signs of failure, seeming but little clouded.

In the respiratory and circulatory systems no positive signs of disease can be discovered; as regards the heart there is the inferential but by no means sure token of its condition furnished by the arcus senilis, together with a certain degree of feebleness of action. The radial artery is free from the atheromatous ridges often met with in advanced life; there is no sign of valvular disease or of

dilatation; and the pulsations are as perfectly regular and unintermitting as they were eighty years ago.

The question arises, how, with such integrity of the vital organs, is death most likely to occur? In all probability, it is not very remote; the doctrine of the expectation of life leads to this conclusion, and so also does the patient's own strong conviction upon the subject—a point to which, I think, much importance is often to be attached. Now there is no reason for thinking that life ever ceases except on account of some organic change incompatible with its continuance. Such change may be of the grosser character revealed by a post-mortem examination; or it may occur in the blood, as in death by drowning or suffocation; or in the molecular constitution of the nervous system, as is probably the case after a fatal lightning stroke. In all of these instances physical alterations take place in some organ or organs, which prevent them from exercising their functions. Such changes in the vast majority of deaths are easily discovered, and it may be inferred, that in the few in which they elude observation, they nevertheless exist, though too minute to be detected. In the case under notice, though there is, at the age of ninety-seven, no positive clinical sign of grave organic disease, yet death is most probably impending over the heart. From the diminution of the force of this organ and the existence of the arcus senilis, I am inclined to think that fatty degeneration is going on, and will prove the immediate cause of dissolution. It is well known that this change may exist to a considerable extent without affecting the size of the heart as determinable by percussion. Its minute pathology is still imperfectly understood. According to Rokitansky the fatty matter is sometimes newly formed out of protein substances by dint of an elementary transforming power, and in the tissues that it affects, it is the forerunner of their entire metamorphosis and destruction.

As a point of trancendental physiology, fatty degeneration may be the ultimate means by which in the absence of more rapidly acting and more purely accidental causes, the fabric of the body would be gradually taken down, disintegrated and reduced to a state in which it is capable of being resolved into its original elements. The instances in which observations have been made after death in extreme old age are too few to establish the fact, that this or any other special metamorphosis of tissue is the result of an inevitable natural process. But if there be a necessary limit to human life, it is conceivable that there is some such natural mode of death awaiting all who escape, what Buffon calls accidental maladies.

And such a limit there must be, for the continuance of the race seems to be imperatively conditioned upon the removal of all the individuals of whom it is at any one time composed, from this present sphere of being.* What is the nature of that inherent tendency to death in man, as in all other organisms with which we are acquainted; what law there is in virtue of which, sooner or later, the processes of life must cease, has never been ascertained and perhaps never will be. "Corruption is one of nature's terms," says Bacon; and, therefore, since there is a limit somewhere, the highest ideal aim of therapeutics can be only the prolongation of life, until the occurrence of physiological or natural death, and the prevention of pathological or accidental death.

If we seem at present far from reaching this ideal aim,

* In proof of this, if proof were needed, might be adduced a curious calculation made by Sir John Herschel: "For the benefit of those who discuss the subject of population," he remarks, "it may be well to mention that the number of human beings living at the end of the hundredth generation, commencing from a single pair, doubling at each generation, and allowing for each man, woman and child an average space of four feet in height and one foot square, would form a vertical column having for its base the whole surface of the earth and sea spread out into a plane, and for its height 3,674 times the sun's distance from the earth. The number of human strata thus piled one on the other would amount to nearly five hundred trillions."

there are thoughtful men who hold that in the progress of medicine and of other branches of physical science relating to conditions of health, such as ventilation, drainage, the cultivation of the soil and the adequate supply of food, the ordinary sources of some diseases will be avoided and the noxious power of others greatly limited, so that death will come on gradually, and in such a strictly natural sequence of events in extreme old age, that the individual may be no more conscious of his death than he has been of his brth.*

The doctrine of the duration of human life maintained by Flourens, receives support from such cases as the one reported above. The French Philosopher, propounds the following question: "Quelle est la durée naturelle, normale de la vie de l'homme?" and replies, "L'homme qui ne meurt pas de maladies accidentelles, vit partout quatre-vingt-dix ou cent ans." This conclusion he bases on observations upon the lower animals, in which, as he asserts the time necessary for full growth is one fifth part of the whole term of life. Thus the camel is eight years growing and he lives to forty; the horse is five years growing and lives to twenty-five; and as man attains the limit of his bodily development, as indicated by the union of epiphyses, at twenty, the normal period of his existence should be 100 years.

The argument may be objected to as inconclusive on the ground that it is difficult to fix the time of complete development. Buffon took stature as the index, and assigned sixteen years as the average period of growth in height. But full stature is often attained when development in other respects is still imperfect; thus the third molar teeth are not infrequently as late in their eruption as the twenty-first year. Flourens' own index does not denote any fixed period; the upper epiphyses of the radius

* See Dr. B. W. Richardson's Lecture on the Poisons of the Spreading Diseases.

and ulna becoming joined to the shafts at the fifteenth or sixteenth year; the lower ones at the twentieth; while the upper epiphyses of the tibia and fibula do not unite until about the twenty-fifth year.

If, however, the same criterion were selected for man and the lower animals, an inference from the life-history of the latter to that of the former would seem to be just: and it is interesting to observe that Buffon and Flourens using different criteria and different multiples, arrived at the same result and placed the natural limit of human life at about a century. Such length of days, however, is exceptional, corresponding with an ideal law, and not with any extensive observation. The accidental causes of death, climatic, mechanical, zymotic, hereditary and moral, are so manifold and besetting, that they must needs be taken into account as a part of the law under which we live.

The two French *savans* have defended an interesting scientific theory, but as a lesson in the lore of numbering our days we may more safely adopt the conclusion of Blumenbach, who placed the natural term of life at eighty years. The same limit was long ago designated by the Hebrew legislator as man's utmost mark, to be attained only "by reason of strength," and when attained, to prove "but labor and sorrow."

VON GRAEFE.

BY GEO. REULING, M. D.
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ALBRECHT VON GRAEFE is the name of a man, who, as a master of his science, as the founder of modern ophthalmology, as the highly esteemed teacher, as the benefactor of thousands that without him would forever have been

robbed of the most precious of all senses—the sense of sight, belongs to the whole civilized world.

When the sire wanders to the long desired grave, the resting place at life's sunset, we know that the task of his life is accomplished, and that nature followed her own old laws; but, when we see great men in the bloom of life, in the highest energy of their mental productiveness within the relentless grasp of death; when the spirit of the manly age in its irrepressible activity struggles against a drooping body, and at last succumbs under a frailty eating its way farther and farther into the very heart of his organic essence; when a whole world of science and art, of projects and geniality for the ultimate benefit both of science and humanity, is suddenly stopped in the midst of its course—then our heart is seized by the deepest grief on account of the irreparable loss. One of those men whom death hath snatched away too soon, is Albrecht von Graefe.

Before entering upon a detailed exposition of the deceased's scientific activity, the reader will be interested in the history of the earlier years of life of this great man.

Graefe was born in May, 1828, at Berlin, where his father, Charles Ferdinand von Graefe, lived then as Professor of Surgery and as Surgeon General of the Army, also as director of the Medico-Surgical Hospital, with the title of "Councellor of State," and occupied the first rank among the surgeons of Germany, and became the founder of the Prussian hospital system.

Early in life Graefe lost his distinguished father, who left him a large fortune, and who had mentally influenced the youngest of his sons even in the tender age of only twelve years. Of his further education his mother, the highly educated Auguste von Alten, took the most loving care by procuring the best of teachers for his instruction. It was especially the excellent mathematician, Dr. Goegel, who early roused in the talented boy the love of

mathematical science, so that Graefe intended at first to cultivate mathematics exclusively; but afterwards he turned to the natural sciences, and among them especially to natural philosophy and chemistry, both of which he studied with great ardor. It is probable that the example of his great father and the study of his numerous surgical writings, valuable even at this date, induced him to exchange natural philosophy for medicine. Graefe passed his years of medical studies at Berlin, whence, after having passed an honorable examination of promotion when scarcely twenty years old, he started on a journey for study. First he visited Prague, where a fresh, active scientific life was found, and at whose University quite a number of prominent men taught and worked. Graefe held constantly dear in his memory the old King's residence and his favorite teachers Jaksch, Dietrich and Arlt, and he used to say, that there he lived "the time of his first love" of medicine.

From Prague he went to Vienna, and thence to Paris, where he remained the longest, and where he found in the persons of Professors Desmarres and Sichel warm friends and admirers of his genius. After a course of industrious studies at Paris, and after a journey of several months, with stoppings at London, Dublin and Edinburgh, he returned to his home, Berlin, in order to establish himself there as physician and as "professor admissus" to the University. Ever since his stay at Prague Graefe had especially interested himself in the study of eye diseases; his teacher and friend Prof. Arlt, (now in Vienna) had the merit of having directed his course to that aim. In Vienna it was Prof. Jaeger, in Paris, Profs. Desmarres and Sichel, who placed their extensive material in those affected with eye diseases at the young student's disposition under their own guidance. Graefe's indefatigable zeal could not be pacified with the mere observation of symptoms; he

wanted to find the causes of the disease, the pathologico-anatomical substratum of eye diseases, in order to found upon that knowledge a rational method of cure. For that purpose he made experiments with rabbits, with which he produced by artificial means certain forms of eye diseases. Every animal had its number on a little piece of tin fastened to the ear, and also its corresponding number in the clinical journal, in which from day to day its condition was entered until the sectional record formed the end of a complete history of the respective diseases. Furnished in this way by new ideas and experiences, Graefe became soon the most renowned oculist of Berlin. The rich means in his possession enabled him to establish a hospital, Graefe's proper field ot action, which was soon frequented not only by younger students, but also by older physicians, who repaired thither for the purpose of widening their knowledge. His renown spread farther with every day; not only from all parts of Germany and Europe, but even from trans-oceanic parts of the world, and especially from the United States there came numbers of persons affected with eye diseases for advice and aid from the world-renowned, though young oculist. The university appointed him Professor and Medical Counsellor, while his King and other Princes distinguished him in many ways.

Such results could only be attained by true talent, by genuine genius, although the material condition of Graefe favored him greatly in his enterprise. His merits as to humanity and sciences are still great enough, however high we may estimate his material advantages.

He raised opthalmology to a height scarcely dreamt of, and the sum of his work appears incredible; yea, we may assert without exaggeration that the uncommon development of opthalmology is principally centred in Graefe's person and works. He raised opthalmology, which so far had been considered a mere appendage to surgery, to the

rank of an independent science, which is already practiced by quite a number of his pupils—who warmly venerate him, for the benefit of suffering mankind, and which has brought forth rich fruit in all zones of the earth.

It is a well known fact that the invention of the ophthalmoscope furnished a means for the recognition and explanation of changes by disease on the inner membranes of the eye, which warrants the diagnosis of that organ almost an irresistible certainty. Although the honor of this invention is due to the celebrated physiologist Helmholz, then Professor at the University of Koenigsberg, after that in Heidelberg, and now in Berlin, yet Graefe recognized at first the practical use of this instrument and knew how to profit by it most extensively; and by this means the searching opthalmologist opened to his eye with one stroke a new world of phenomena, which laid open the proper nature of a series of diseases only known by their symptoms, for the cure of which now rational means could be applied. Add to this, that Graefe was fully possessed of all the assisting sciences of medicine, especially of mathematics and natural philosophy. With a strictly physiological conception he connected the capacity of combination of genius, with a theoretical education, practical skill, and a rare talent of observation. Only by this he was enabled to raise opthalmology to the rank of a science, strictly systematized and divided by fine mathematical lines, as now it must be recognized by every well educated physician. As the history of development of this new science we must take the "Archives of Opthalmology," which Graefe edited, together with Professors Arlt and Donders, of which, up to Graefe's death, fifteen respectably-sized volumes had made their appearance.

It cannot be our intention to enter here upon a lengthy discussion of all the scientific labors and results of Graefe. We must rather limit ourselves to his greater original works.

First Graefe recognized in the progressive near-sightedness, and the blindness often following it, the result of a slow inflammation of the vesicular membrane, (Choridea). and the sclerotic tunic, and the disturbances of the retina caused thereby, and succeeded in battling down this very serious disease by timely applications for a methodic abstraction of blood, &c. More important and of a higher significance is his work on Glaucoma, which up to June, 1856, as an incurable disease ended, in spite of all possible applications, and under excruciating pains, in blindness. By means of the eye-mirror, Graefe succeeded in discovering the first beginnings of the disease, (the glassy or vitreous mass of the eye increases, and causes an excavation of the disk of the nerves of sight, and by that a dislodgment of the blood vessels,) and in preventing the progress of this most dreadful of eye diseases, by cutting out a piece of the Iris, (Iridectomy). Of great interest is also Graefe's discovery of entozoa in the membranes and liquids of the eye, and their successful removal by operation, by which the eye, otherwise doomed to be lost, is saved. The cure of the cataract, already known, experienced by Graefe's new method of operation, a statistic so much more favorable, that his mode of operation has been adopted by almost every oculist. One of the principal merits of Graefe consists in the careful examination of the functions of the eye-muscles, and of their influence upon the divers disturbances of the organ of sight. His work on the "Physiology and Pathology of the oblique eye-muscles," also "on squinting," are justly considered as classic, and marking an epoch in medicine. He possessed at the same time a mastery of form to a high degree, and a control of language which lent his scientific treatises a peculiar charm and value.

It can scarcely be conceived how Graefe could find time and mind for writing his immortal works, since almost the

entire day was devoted to practical activity, and since his broken health compelled him often to spare himself.

Commonly he was at 7 o'clock A. M. at his writing-table, where he remained until 9, exclusively engaged in scientific pursuits. Then he delivered his lectures, which were frequented by students and physicians from all countries. Until 3 P. M. lasted the clinic instructions, and the passing through the Polyclinic, which was daily visited by about 150 persons affected with eye diseases. The necessary operations over, he entered his vehicle to visit his patients all over the city. As late as 5 P. M. he came home, exhausted, to take his dinner. At 6 he resumed his private audiences at his house, which lasted several hours, and was regularly sought by 60 or 70 patients. When these had left, he returned to his scientific labors, at which the late hours of night often found him engaged. Thus his whole life, except a few hours, was devoted to work.

With all that, Graefe was not at all a one-sided student of a specialty, or opposed to social pleasures. He gathered once a week a circle of congenial friends, gentlemen and ladies, around himself, at which occasion he charmed as host all hearts by his natural amiability and innate joyousness. His matrimonial connection with Countess Keuth rendered him truly happy by a most beautiful domesticity, to which he devoted exclusively the latter years of his life.

Before all things, Graefe loved nature. His vacations he spent in the mountains of Switzerland and Savoy, where Mont Rosa was one of his favorite spots. In the latter years of his life, the sufferings with his respiratory organs debarred him from visiting the mountains, on which account he went every year to bath Heiden in Appenzell, where he was generally beloved as "genus loci," and where he was followed by numerous patients from far and near. As a man, Graefe distinguished himself by his ele-

vated sense of justice. Gladly did he acknowledge the merits of others, while he always manifested the greatest modesty. His colleagues he met with as much humanity as urbanity; only where he perceived self-conceit, presumption, unscientific modes and obscurity, he knew how to exercise a sharp, yea even annihilating criticism. In the intercourse with his patients, he developed the kindliest sympathy and patience. He treated the rich and the poor with the same attention. Many thank him not only for the preservation of their sight, but also for their daily bread. His assistants and scientific associates found in him a most sincere friend in joy and grief; he treated them on the old student's footing, and dwelt with great pleasure upon the recollections of university life, whose relics—the well polished rapier, the gay smoking cap, and the striped emblem of the students' union—he had preserved with true piety. With a prominent intelligence Graefe united a deep-feeling heart, which was known only to those of his family and his nearest friends.

In his forty-third year Graefe succumbed under the sufferings of his chest. As short as was his career, as great are the works which he created and left behind. The entire medical world which has made the diseases of the eye a specialty is permeated by Graefe's spirit, and at his grave mourns grateful mankind.

MEDICAL SOCIETIES.

THE BALTIMORE PATHOLOGICAL SOCIETY.

THE first regular meeting of the Baltimore Pathological Society, after a long summer vacation, was largely attended, and gives promise of much interesting work for the coming winter. We select from the papers read the following, by Dr. H. P. C. Wilson:

Case of Procidentia Uteri—Os emerged from the Vulva 3¼ inches—Amputation of the Cervix—Recovery.—Miss ——— ———, æt. 28; tall and well developed; of high social position and unblemished character; grew up very rapidly, and has slight lateral curvature of the spine; thought by her former physicians to be due to her great rapidity of growth at from 12 to 18 years; has had no fall or injury, except a fall when she was a small child, from which she seemed to derive no injury; was very delicate till about seventeen years old, when she had a severe illness from typhoid fever, after which she became strong and hearty, and has had perfect health ever since.

She commenced menstruating at the age of seventeen, naturally, without pain or any difficulty, and has been perfectly regular ever since—never excessively, but in all respects most normally. The third time she menstruated she discovered her uterus emerging from the vulva, since which time she has never been able to retain it in the pelvis. When replaced it would very soon emerge again,

whether she remained in the recumbent position or not. After a lapse of nearly eleven years I find her with the cervix uteri emerging from the vulva three and one-fourth inches; the probe passes into the uterus five inches, so that the body of the uterus, and supra-vaginal portion of the cervix measured one and three-fourth inches. The transverse diameter of the cervix measured one and one-half inches. The external os uteri was so patulous that the index finger could very readily be inserted into it. The mucous membrane covering the cervix was much more like skin than mucous membrane.

This young lady has suffered great distress of mind, as well as body, for these eleven years, from this hypertrophic elongation of the cervix uteri—so long, that it was simply impossible for the organ to remain in the pelvis,—and yet her physician, being one of the old school, and of the generation now rapidly passing away, had advised her never to have anything done for it. Two other very distinguished medical men had told her that it might be amputated, but rather discouraged her from it, so that it was with the greatest difficulty that I persuaded her to submit to an operation.

On Monday, October 17th, 1870, she was placed under chloroform by Prof. McSherry, and laid on a table in the dorsal position. Assisted by Dr. Wm. B. Griffith, and her sister, I proceeded to amputate fully two inches of the cervix uteri; feeling sure that the suppuration, contraction and retraction which would follow, would be sufficient to reduce the organ to its normal size, and enable it to retain its normal position.

I first placed a pretty strong copper wire around the cervix, just above the point at which I proposed to amputate; passed the two ends of the wire through a Gooch's double canula, to use as a tourniquet, and thus control hemorrhage; but before twisting the canula, and tightening the

wire, with two tenacula I stretched the mucous membrane well up above the wire, so as to gain plenty of flap to cover the stump after amputating. The wire was then tightened.

With a pair of straight scissors I split up the cervix, right and left, to the point where I proposed to amputate, and with scissors bent at an obtuse angle, I then amputated, first the anterior, and secondly the posterior flap, steadying the cervix, with a tenaculum hooked in the posterior flap. Not one drop of blood escaped until I relaxed the wire used as a tourniquet, when three small arteries sprang, and there was copious venous hemorrhage. The three arteries were tied. Compression and ice were applied to the stump to check the venous blood. Persulphate of iron was avoided, because I designed to cover the stump with a flap, as in an amputated limb, and have it heal by first intention, which the iron would have prevented. After some little delay the hemorrhage was entirely stopped, the flap of mucous membrane was brought over the stump, and its edges accurately brought together, and thus retained by five interrupted silver wire sutures. The vagina was tamponed *loosely*, and the patient lifted into bed.

I left her at 12 o'clock. At 3 o'clock I received a message to come immediately, that Miss T. was bleeding terribly. On reaching her bedside I found her clothes and bed saturated with blood. A clot had formed behind the tampon, and forced it out of the vagina, and the vagina was again filled with clotted blood.

She was again lifted on the table: all clotted blood cleared out of the vagina; when the flap covering the stump was found to be greatly distended with a clot of blood, and fresh blood rapidly flowing between the sutures.

I removed four of the sutures; removed the clot of blood between the flap and stump; applied undilute liquor ferri persulphatis to the freely bleeding surface, then a pledget

of lint soaked in the iron, and then very tightly tamponed the vagina. The patient was lifted into bed, and there was no more hemorrhage, or any other difficulty, except an inability to evacuate the bladder from the tightness with which she was tamponed. The catheter was used twice daily for four days, when suppuration was well established and the tampon was removed.

I have learned a valuable lesson by this case, and that is, never to amputate the neck of the uterus without most accurately and tightly tamponing the vagina. Had I done so in this case, I am satisfied I should have had no hemorrhage. I would have escaped a great deal of trouble and annoyance, my patient would have escaped the exhaustion incident to great loss of blood, and the delay in her recovery from having the wound to heal by granulation rather than by first intention, and her friends would have escaped the greatest alarm for her safety.

I was induced not to tampon so tightly from having tied all the arteries, and the perfect stoppage of all venous hemorrhage before closing the wound.

While on this subject, I may say, that to perfectly tampon the vagina we should have good, well carded cotton. This should be broken into small pieces, and these pieces should be thoroughly wet, and then squeezed dry and flat between the two hands. These flat pieces of wet cotton should be packed tightly, one on the other, each piece being placed in position by forceps in the right hand, and held firmly there by a solid rod in the left hand, till the whole vagina is packed accurately full down to the vulva. We should fill up first the posterior cul de sac, then the anterior cul de sac, and then in front of the os uteri.

Nov. 4th.—Miss T. is now sitting up and moving about her rooms. The stump of the uterus is healing rapidly by granulation. There is a good deal of suppuration. The uterus now measures, from the external os to the fundus,

three inches. There is no disposition for it to emerge from the vulva. It will be further reduced in size by suppuration and cicatrization, and there is but little doubt that the cure will be perfect. It is now nineteen days since the operation, and it will require some fourteen days more before cicatrization is established. Had it not been for the hemorrhage, the wound would probably have healed in ten days, by first intention.

The great interest in this case is, that a procidentia of such extent should exist in a girl who had never borne children, and that it should make its appearance at such an early age, (a little over seventeen,) without any apparent cause. I do not remember any similar case reported in one so young, who was raised so tenderly, and unused to hard work; who had received no fall or injury, and almost certainly had never been pregnant.

The procidentia no doubt commenced with hypertrophic elongation of the cervix, which caused the neck to slide down on the perineum towards the vulva, (from its inability to remain in the erect position,) and this in turn caused the body of the uterus to go backwards toward the sacrum. With the uterus in this position, and of nearly double its normal size and weight, it required very little extra effort, when the uterus was congested at a menstrual period, to cause the cervix to emerge from the vulva. It will be remembered that her first cognizance of any displacement was at such a period.

Pneuma-Traumatic Deafness. By Dr. Saml. L. Frank.— I propose this evening to say a few words concerning an affection of the ear which I term "*Pneuma-Traumatic Deafness*," or deafness produced by a blow on the ear. I think I can best explain this form of ear complaint by giving you the history, change in appearance, and treatment of a few cases.

The first case was Mr. A——n, Baltimore, who came to my office November 22d, 1867, complaining of deafness and constant noises in both ears. No affection whatever of the ears until the day before. At that time, while sitting at his door his wife came up softly behind him, and as a token of her presence playfully struck him on the ears with both hands, no doubt in not too gentle a manner. The result was that he immediately became deaf, and had noises in both ears. The tick of the watch he heard about two inches from the ear, instead of at least six.

Upon examining the ears with speculum and reflector—the method now in general use among aurists—the only change in the meatus discoverable was a great concavity, externally, of the *membrana tympani;* or rather, there were really *two great concavities in each ear*, separated by the handle of the malleus; and the reflected spot on the lower portion of the *membrana tympani* had disappeared almost entirely, only a narrow line being visible in the place of a triangular spot. This was the appearance in both ears; there was no other change; the throat in a healthy condition.

The treatment consisted in using the Eustachian Catheter on both ears. The result was immediate benefit; the hearing was restored to its normal condition, and the noises ceased. The next day I found the noises and deafness had not returned, and after again using the Eustachian Catheter, I discharged the patient as well.

Up to the present time he has had no relapse, and hears perfectly.

The history of two other cases is about the same as the one just cited, and therefore need not be particularly dwelt upon. The last case seen differs from the others.

The first case I saw the next day after the blow had been received, the second on the third day, the third on the ninth day, and the fourth on the fifth day. They were all

four married men, and came to me, one in 1867, two in 1868, and one in 1870.

Three were struck from behind, whilst the fourth received the blow from his wife, she standing *before* him and boxing both his ears.

This last case was that of a patient who consulted me September 28th, 1870—(the blows had been received September 23d, five days before). He complained principally of the noises in his ears—especially in the left ear. The digital impression made upon his ears was so great that he was unable to state positively, without first asking his wife, whether the blows had been given on one or both ears. His hearing had been good up to that time. When he came to me I found the family physician had already ordered that great panacea of the majority of physicians for all ear diseases, no matter of what character, nature, or degree, namely, a fly blister back of the ear most affected—in this case the left one. But, unfortunately for the doctor and patient, the blister would not draw the *membrana tympani* back to its normal position, nor relieve the pain, and the consequence was the noises and deafness continued. The deafness was not so great, but the noises were more severe than in the three other cases.

The throat was also somewhat congested, and in the ears, beside the great *concavity* of the *membrana tympani externally*, (and consequently convexity internally—also double, as in the other cases,) there was also a large opaque and thickened spot on the right ear, a little below, and posteriorly from the malleus. On the left ear, the one more affected, there were two such opacities, or thickenings, as fully described in Politzer's *Beleuchtungsbilder*, one at the end of the malleus, circular in form, and the other at about the same spot as on the right ear; the one on the right ear being also circular, whilst the second and posterior one on the left ear was much larger, and rather elongated.

At the first glimpse, these spots looked very much like accumulations of pus, but were, in reality, thickenings and degenerations in the fibrous layer of the *membrana tympani.*

I used Politzer's method of inflating the middle ear, which you will find fully described in all modern works on Ear Diseases, and which constitutes the simplest and easiest method of treating affections of the ear. This patient heard the tick of the watch about one inch from the left ear, and about one and three-quarter inches from the right ear; in ordinary conversation heard tolerably well; his only complaint was the constant noises in his ears, which he was most anxious to be rid of. Politzer's inflation of the middle ear was used several times, and although it was impossible, from the degeneration of the *membrana tympani* already existing, to entirely relieve him, he was considerably benefitted, the noises being reduced to a minimum compared to what they had been.

It is remarkable in this case that the patient should have heard so well in ordinary conversation, considering the degeneration of the fibrous layer of the *membrana tympani*, and which, no doubt, had already existed for some time, and was only accidentally discovered. Unfortunately, the patient would not continue treatment after the tinnitus had almost disappeared, as he thought he heard well enough.

The ears of the other three patients were perfectly normal, except the forcing in of the drums through the blows, and were entirely relieved of the deafness and noises.

All four of these patients had been scrofulous in their youth, now middle aged, and enjoying good health.

None of the works on ear diseases, (as far as they have come under my notice,) speak of this *form* of complaint.

Politzer,* page 130, speaks of abnormal concavities of

* Die Beleuchtungsbilder des Trommelfells von Adam Politzer. Wein 1865.

the *membrana tympani* produced by long continued closure of the Eustachian tubes, the air in the tympanic cavity being absorbed, and the external air thus forcing the *membrana tympani* inward.

I consider the affection described above to be simply a mechanical one, the air in the external canal being suddenly forcibly compressed, and finding no other outlet, forces the *membrana tympani* inward upon the middle ear, and so powerfully is this done that the circular fibres of the fibrous layer of the *membrana tympani* are unable, after the hands are taken from the ears, to draw the membrane to its natural position; the result is tinnitus and deafness.

According to Politzer, if abnormal concavity of the *membrana tympani* exists for some time, "it will cause loss of contractility in the tendon of the tensor tympani muscle; this, again, would indirectly cause pressure on the ossiculi and labyrinth, which would produce functional troubles, and in time become incurable."

Dr. Troltsch says: "If great concavity of the *membrana tympani* exists for some time, it produces atrophy, and *loss of elasticity* in the membrane." Thus it will be seen that these cases demand prompt attention if relief is desired.

Prognosis is favorable if treated early and no complications exist.

Treatment.—Thus far, inflating middle ear with air by the aid of Politzer's instrument, (consisting simply of an India rubber air-bag, with a piece of tubing attached,) the air being pressed through the Eustachian tubes into the middle ears, and by this means forcing the *membrana tympani* back to their normal position, a very simple procedure, or else using the Eustachian catheter on each ear, is all the treatment that I have found necessary.

Should any complications exist, they must of course receive the necessary attention and treatment.

Dr. Russell Murdoch exhibited an apparatus devised by him, for the purpose of enabling patients with fracture of the lower extremities to leave their beds, and get about at an earlier stage than is commonly permitted, and for the treatment of Coxalgia. The apparatus consists in a modification of Prof. Smith's Anterior Splint. The splint, instead of being suspended in the usual manner, is attached, by its upper extremity, to a frame-work consisting of two cross-pieces, which pass across the back of the patient, being held in position by straps. To the support are attached crutches, the heads of which are movable upon the shaft, but fixed to the transverse bars. The weight of the limb is sustained by the back of the patient, either in lying or walking. By means of the movable crutch-heads the limb is kept perfectly steady in walking. The apparatus, it is hoped, will enable patients to leave their beds at a much earlier day than is now possible, and seems well adapted to army practice, as it will greatly aid cases of fracture in the early removals so often necessitated in the field. Dr. Murdoch also exhibited a portable support, to be used in connection with Prof. Smith's Splint, consisting of a frame-work to rest upon the bed of the patient, to which the cord for support is attached.

SELECTED ARTICLES.

RETENTION OF URINE FROM IMPASSABLE STRICTURE.

BY S. W. GROSS, M. D.
Lecturer on the Diseases of the Genito-Urinary Organs, Jefferson Medical College.

RETENTION of urine is a complication of urethral stricture not unfrequently met with; but, fortunately, the vast majority of such cases yield to chloroform and the proper use of the catheter or the conical steel sound. When a man is suffering from a distended bladder dependent upon a firm, tight stricture, the young practitioner must be careful not to be cajoled into the idea that if a small metallic or flexible instrument cannot be passed, or even entered, the urine must of necessity be evacuated by tapping the bladder. Let him rid himself at once of the overcautious timidity in introducing metallic instruments. Let him forget the teachings and writings of certain contemporaneous surgeons, who have instilled into his mind that anything like force is to be avoided, and who have done incalculable harm by surrounding the subject with mysterious difficulties and dangers which do not exist. On the contrary, when the life of his patient is at stake, he must repose firm faith in his catheter and act with decision. Taking a medium-sized instrument, the point of which should correspond with the narrowness of the stricture, and should never be less than No. 1, English gauge, for fear of perforating the canal, and carrying it down to the seat of the obstruction, the penis at the same time being put upon the stretch, by making slow, firm, steady, and long-continued pressure, he will succeed, nine times in ten, in overcoming the so-called impermeable stricture and in affording relief. Should the obstruction be so obstinate as to defy this means, or should the urethra be lacerated and a false route be commenced, forcible attempts must, of course, be at once abandoned and other

measures resorted to. Let me not be misunderstood: I do not advise rudely driving an instrument onward into the bladder in spite of every obstacle; for, although it may be readily done, and be followed by immediate relief, the worst consequences would be liable to ensue. But I do mean to say that if teachers would talk less of the dangers of using "force,"—which is merely a relative term, and conveys to the inexperienced mind any or all procedures which draw blood from the urethra,—and would drop the expression altogether, and teach their classes to rely upon a silver or steel instrument, instead of wasting time and poking about with small flexible ones, and direct that such an instrument be used with gentleness, albeit with firmness and decision, such authorities would send forth better practitioners, avoid useless operations, and spare lives.

Instances of complete retention from tight, chronic stricture do, however, occasionly occur, which defy all attempts to pass a catheter, even in the hands of the most expert surgeon; and in such cases success is rendered impossible, either from neglect on the part of the patient or from previous improper treatment. Immediate relief is demanded from the urgency of the local and constitutional distress. There is danger of the urethra giving way behind the obstruction, particularly when it is of very long standing; or extravasation of urine may have actually begun. In such an emergency the attendant must be equal to the occasion. There is no time for deliberation. An artificial passage must be secured to the urine, either by opening the urethra from without, or by puncture of the bladder, according to the circumstances of each particular case.

When the retention is due to impassable stricture of the perineal urethra, or that portion of the canal seated behind the scrotum, the only operation that should be performed is that of dividing the stricture, either from before backwards upon the point of a catheter, as in the old and difficult perineal section, properly so-called, or of laying open the urethra behind the contraction, with subsequent division or not of the latter, as the operator may see fit. In either event, a free outlet is at once afforded to the pent-up urine, and the cure of the stricture is begun.

When on the other hand, the retention is due to impassable stricture of that portion of the urethra covered by the scrotum, or

the portion in front of the scrotum, incisions practiced from without are not proper, owing to the liability to urinary infiltration in the former case, and to the difficulty of closing the wound when the penile urethra is opened. Internal urethrotomy with a lanceted stylet protruded from a canula, as in Physick's or Stafford's instruments, may be resorted to; but the uncertainty and hazard of using such contrivances without a guide are too well known to be dwelt upon here. What, then, should be the line of conduct in such an emergency? Ordinarily, vesical puncture, most often by the rectum, has been the rule. Rather, however, than puncture the stricture or the bladder by any of the usual routes, I should myself prefer to open the membranous urethra; and this I should do with three objects in view: first, to empty the bladder; secondly, by diverting the urine through a new channel to give the urethra, at the seat of the obstruction, time to recover from the irritation and pressure of the urine to which it had been long subjected, and thereby facilitate its future treatment; and thirdly, to place the prostate gland and the bladder at rest, whereby they would be enabled to recover from the effects of the constant and laborious work in which they had been long engaged.

The subjoined case of retention of urine from impassable stricture of the scrotal urethra will illustrate what, in my judgment, is the proper course to be pursued in all similar instances:

On Wednesday, the 4th of May, I was called to G. P., a butcher, aged 36 years, of temperate habits and good general health, whom I found walking up and down his room in great distress, his heart and brain being much excited, while his hypogastrium was tumid, tender, and painful. Fifteen years previously he contracted a gonorrhœa, which was of a severe nature, being attended with frequent chordee and hemorrhage, and one year subsequently he first noticed signs of obstruction. For the past eighteen months the stream of urine was not larger than an ordinary knitting-needle, and at times it was even smaller, or trickled away by drops, and the act of micturition required at least ten minutes, or longer when the call was not at once attended to. He had never undergone treatment, nor was he aware of the precise nature of his trouble.

On the previous Monday morning, at four o'clock, he did not succeed entirely in emptying his bladder, the urine issuing at first

in a slender stream and afterwards by drops. Throughout the succeeding twenty-four hours the calls to micturate were frequent, and the act was much prolonged and performed guttatim. This state of affairs continued until early on Tuesday evening, when complete retention set in, depriving him of rest and sleep during the entire night, on account of severe suffering and vesical tenesmus, which obliged him to pass the interval between ten o'clock and daylight on his *pot de chambre*, in fruitless and forcible efforts to obtain relief. When I saw him, at eleven o'clock on the following morning, the bladder formed a tense and tender tumor, which extended two-thirds of the way to the umbilicus; he experienced pain above the pubes and in the back and loins; straining was constant and very distressing; the pulse was excited, and the skin hot. Exploration showed a stricture near the meatus, which having been divided with a probe-pointed bistoury, a No. 8 English gauge silver catheter was inserted, but it was arrested just in front of the peno-scrotal junction, where a stricture could be detected by external manipulation, which imparted to the touch the sensation of a dense ligamentous cord.

Being alone and without the necessary appliances, I had the patient removed temporarily to the college hospital, where he was put to bed. Chloroform having been administered, and oil injected into the passage, slow, steady, continuous pressure was made against the face of the obstruction, first by the catheter, and then by conical steel sounds, the point of the smallest of which was rather less than No. 1, English gauge, the penis at the same time being put upon the stretch. Failing in effecting penetration, these instruments were laid aside, and elastic catheters and bougies, descending in size to No. 3, French gauge, the diameter of which is about the one twenty-sixth of an inch, were substituted. Patient efforts to insert any of these into the stricture were also fruitless, when I selected a whalebone filiform guide, the probe-point of which measured one-fifth of a millimetre in diameter, with the view of testing the retention catheter of Professor Gouley.* This little instrument passed, apparently, through the obstruction into the bladder, but it was impossible to carry the catheter over it and others used for the purpose, on account of the whalebone being stripped up by the

* Medical Record, May 15, 1869.

end of the catheter, which prevented its onward passage. Indeed, I did not feel quite sure that the guide had penetrated the stricture, since, from its firm, unyielding character, it is liable to make a false route, which I consider the great objection to its employment. I was therefore not at all sorry that the catheter could not be passed over it.

All means for procuring the discharge of the urine by the natural channel having signally failed, and in view of the urgency of the symptoms and the dangers of delay, the only remedy left was to relieve the bladder by making an artificial opening into some point of the urinary organs. As I do not regard puncture of the bladder above the pubes a proper or even desirable operation, except in cases of retention from prostatic tumors, my first thought was to tap that viscus through the rectum; but examination disclosed so much hypertrophy of the prostate gland that my finger could not be carried to its posterior border, thereby excluding that procedure. While my finger was in the bowel, and in contact with the prostate, it occurred to me, however, that the membranous urethra could be readily opened through the middle line of the perineum, the apex of the prostate serving as a prominent landmark, through which operation a free and direct outlet for the urine would be afforded. Taking my seat on a low cushion in front of the perineum, the patient having been placed in the usual lithotomy position, I passed my left index finger, with its palmar surface upward, into the anus, and brought its tip in contact with the apex of the prostate, the bulge of the rectum having been effaced as much as possible by carrying its anterior walls backwards by my nail during the introduction of the finger. I then placed the point of a long, straight bistoury in contact with the raphè, five lines in front of the anus, the back of the knife presenting towards the bowel, while the handle was somewhat depressed, and, thrusting it upwards and backwards, as if to strike the tip of my finger, I succeeding in puncturing the membranous urethra at about its centre, as was indicated by the escape of bloody urine. On withdrawing the knife, I enlarged the urethral wound, and incised the superficial structure exactly in the middle line and upwards towards the scrotum to the extent of nearly one inch. Through the free opening thus made the urine gushed in a full stream, when a flexible No.

10 English catheter was inserted into the bladder, by which the remainder of the urine was drawn off, the total amount having been about three pints. There was pretty smart hemorrhage from the division of the bulb, probably to the extent of ten ounces, but, as it seemed finally disposed to coagulate around the catheter, this was allowed to remain, its projecting portion having been cut off. The patient was put to bed, with a sponge between his thighs to absord the urine which was constantly trickling from the catheter, and one-third of a grain of morphia was thrown under his skin. To Dr. Graham, Dr. Dickson, Dr. Barton, Dr. Hearn, and Mr. Newcomb, I am indebted for their assistance during the operation.

Without entering into minute details, the following condensed notes from the daily record will indicate the progress of the case. 5th, A. M. Passed a good night, and expresses himself as entirely relieved; the catheter escaped from the bladder during the night, and clear urine is passing by the incision. 6th, A. M. Suffered from chilly sensations yesterday afternoon, followed by slight fever and nausea. 7th, A. M. The urine has ceased to trickle from the wound, it having been passed voluntarily by that route last night, and at five and ten o'clock this morning; some fever. 9th, A. M. Patient will be permitted to go home to-day. Herpes phlyctenodes abundant about the lips, nose, and cheeks. Has been retaining his water for four or five hours at a time. 28th. Herpes has entirely disappeared, and he has been sitting up for the past week. The perineal wound has contracted to one-fourth of an inch in length, but it permits the free escape of the urine. For the past two days, at each act, a few drops have passed by the natural channel, and a No. 4 bougie, French gauge, penetrated the stricture. 29th. Under chloroform, a conical steel sound, the point of which measured No. 2, and the shaft No. 8, English gauge, entered the bladder without much difficulty, when it was replaced by Richardson's dilator and a No. 12 rod forced between its blades. A free passage having been made by these measures, I was enabled to introduce a urethrotome and divide the stricture, which was two inches long, from behind forwards on three sides, which I deemed advisable to insure a better chance for permanent relief. A No. 22 French vulcanized India-rubber catheter was then tied in. 30th. No urethral fever; slight purulent discharge at the meatus; but, as the instrument is

tightly grasped by the urethra, and is giving rise to no inconvenience, it will be permitted to remain. June 1. The catheter came away early this morning. 3d. Introduced a No. 14, English gauge, steel sound with the greatest ease, and the patient was directed to take out-door exercise. 9. Perineal wound has closed; the same sound has been used every forty-eight hours, and the patient resumed his business three days ago. Subsequently a No. 22 French bulbous ended bougie, which is equivalent to No. 12, English gauge, was introduced by the patient at intervals of two days for three weeks, then every four days for a month, and he now employs it at intervals of one week.

Remarks.—The preceding case of retention of urine is the only one that I have ever met with in which I have felt it incumbent upon me to establish an artificial channel for its evacuation. Here was a chronic, narrow, indurated stricture of the scrotal and antescrotal urethra, temporarily obstructed by spasm and congestion, which would neither admit an instrument nor permit the flow of urine. Deeming external urethrotomy, particularly without a guide, a bad procedure, on account of the hazard of urinary infiltration and the difficulty of closing the incision, I chose an operation, in preference to vesical puncture, which fulfilled perfectly the objects for which it was designed,—namely, the immediate relief of the retention, and the subsequent spontaneous permeability of the canal. Three weeks after its performance some urine made its appearance by the natural passage, and the stricture had so far loosened itself as to admit instruments, through which the normal calibre of the urethra was finally restored. It has long been a recognized fact that when a stricture is relieved from the irritating influences of constant attempts at micturition and the pressure of the urine, it sooner or later becomes so much relaxed as to allow urine to pass and a catheter to enter. This effect may be secured by any of the procedures for emptying the bladder. Hence operations for dividing the obstructions are not always absolutely necessary; and the young practitioner who fears to encounter the difficulties and dangers of cutting through a stricture without a guide, may have the satisfaction of knowing that, by temporarily establishing an artificial route for the discharge of the urine, the

local irritation about the stricture will subside and enable him to attempt its management by the ordinary means.

To fulfil these desirable objects.—namely, to unload the bladder and allow the urethra to recover itself,—what operation should be selected? Of the different modes of puncturing the bladder for the relief of retention, that by the rectum is the one usually adopted, suprapubic puncture being restricted to those rare cases of retention from prostatic trouble which cannot be reached by the former procedure. Now, recto-vesical paracentesis is not difficult, neither is it devoid of dangers and drawbacks. During its performance the bladder has been transfixed or missed altogether; the vasa deferentia and vesiculæ seminales have been wounded, and, in one instance at least, the inflammation has extended to the testicle, which suppurated; abscesses have formed between the bowel and bladder in the track of the canula; in one case, narrated by Mr. Erichsen, rectal flatus diffused itself through the cellular tissue of the pelvis and down the thighs and nates, giving rise to emphysema of those parts, and eventuating in the death of the patient; the peritoneum may descend very low and be wounded; a permanent fistule may remain between the viscera; effusion of urine is to be dreaded; both bladder and rectum are opened, when there is no necessity for it; and, finally, enlargement of the prostate forbids its performance.

Such being the dangers and disadvantages of rectal puncture, and the objections to it, laying open the membranous urethra through the perineal raphé, by which an easy, free, and direct outlet is afforded to the urine, is left for the consideration of the surgeon. This operation is neither new in performance or in principle. Indeed, it dates back upwards of two hundred years, it having been first done in 1652 by Mr. Edward Molins, of London,* and was advised and practiced in the present century for cases similar to the one I have recorded, in preference to tapping the bladder, by such men as Mr. Granger, Sir Charles Bell, Sir Astley Cooper, Mr. Liston, Mr. Bransby Cooper, Mr. Arnott and Mr. Simon, the last-named surgeon having habitually performed it. That it has not continued in favor is, I think, due to the impulse given to recto-vesical paracentesis by Mr. Cock, of Guy's Hospital,

*Several Chirurgical Essays. By Richard Wiseman. Second ed., pp. 574. London, 1686.

which procedure, possibly from its bloodless and apparently simple nature, appears to have completely driven it from the field of operative surgery. At all events, I do not find that it has been practiced of late years abroad; and I believe my own operation to be the only one of the kind ever done in this country.

The operation itself being one of great simplicity to the practical anatomist and surgeon, I introduce it to the notice of the profession, in order that it may be fully and fairly tested, with the view to supersede the operations of tapping the bladder. The practitioner who urges the objection—and it is the only one which can be brought against it—that it requires minute anatomical knowledge, forfeits the right to perform it; for if he has not made himself familiar, by dissections, with the relative situations of the prostate, the membranous urethra, and the bulb to the perineal portion of the rectum, he had best practice rectal puncture, or, still better, relinquish the patient to the surgeon who fully understands his business, for he is morally wrong in taking such cases. Performed in the way that I have indicated, nothing can be more simple or expeditious. The membranous urethra occupies a fixed and invariable position in the median plane of the perineum, and in many cases of inveterate stricture at the usual locality it may be felt to be distended by the urine. The prostate gland, which is the great landmark in the operation, also occupies a definite position; and the statement made by some writers that it recedes in consequence of the vesicle distention is visionary. Both prostate and membranous urethra are readily distinguished by the finger in the rectum. The space in which the operation is performed is known as the recto-urethral triangle, and examination of a vertical section of the wet pelvis, which passes through the median line of the triangle, will disclose the following relative positions of the parts concerned: Commencing behind, the prostate will be seen lying within one line of the anterior wall of the rectum, which viscus, at the summit of the gland, turns slightly backwards, to terminate at the anus. The bowel forms the posterior wall of the triangle, and it is highly important to note that it forms a marked dilatation above the sphincters, which rise at least half an inch above the dependent anus. The anterior boundary of the space, it will be observed, is formed by the membranous urethra, which curves

somewhat forwards, overlapped by the bulb, while the base of the triangle is at the surface and the apex at the prostate, and it is through the soft parts that fill these boundaries that the knife is thrust to open up the urethra. The depth and width of this space vary in different subjects, but numerous observations and examinations made during a series of years enable me to give what I believe to be the average distances in the medium-sized adult. The distance between the verge of the anus and the bulb—the base of the triangle—is four-fifths of an inch, while the rectum is seated half that distance from the bulb. The membranous urethra is situated ten lines in front of the rectum and sixteen lines above the anus; and the antero-posterior diameter of the space, or the distance between the apex of the prostate gland and the external skin, is about twenty lines.

From the preceding considerations, it is obvious that the only structures at all endangered are the rectum and the bulb. Wound of the former viscus may easily be avoided—first, by carrying its anterior wall backwards by the finger introduced into it; and, secondly, by effecting the puncture with the blunt back of the knife directed toward it. As an additional precaution, the bistoury may be slightly curved, as was recommended by Sir Charles Bell* and Mr. Arnott.† The bulb can only be injured by prolonging the incision made on the withdrawal of the knife too far forwards, and it must, of necessity, be divided by an incision one inch long from a point half an inch above the anal aperture, as I made it. Free hemorrhage is not, however, to be anticipated, particularly if the division has been effected precisely in the raphè. Should it occur, and not cease spontaneously, it can readily be checked by inserting a catheter through the wound into the bladder, and plugging with lint around it. For my own part, I do not consider division of the bulb as a matter of much importance, as any disadvantages that might arise from it are outweighed by an incision which gives a free and direct outlet to the urine. When, however, it is deemed prudent to avoid the loss of blood,—as when the patient's powers are exhausted by chronic urinary disease,—a smaller cut, or a mere puncture, may be made. For this purpose the bistoury may be

* Institutes of Surgery, vol. i. p. 305. Edinburgh, 1837.

† Medical Times and Gazette, vol. iv., N. S. 1852, p. 451.

entered two-fifths of an inch above the anal aperture, and a cut of the same length be made upwards. Limited to this extent, the bulb will not be touched, nor will the rectum be endangered at the point of puncture.—*The Medical Times.*

LECTURE ON ANALYTICAL PATHOLOGY.

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IN the last lecture I was showing the importance of recognizing the different kinds of activity which different groups of elements of tissue exert to compose their part of the process of inflammation. We took the group of elements which are permanently cellular in form, whose function is discharged by repeating the production of new cells while the old die away; and the propositions advanced were these—

1. That these cellular elements, under slight morbid irritations, show a tendency to the over-rapid multiplication of their numbers, constituting hyperplasia or numerical hypertrophy. I think it was clearly seen, in the instances I gave, that the cellular elements of tissue do so multiply with great facility.

2. That the swellings so produced in organs that abound in cellular elements are commonly transient, and easy of requiescence and subsidence; and

3. That, under conditions the opposite of irritation, these cellular elements show an equally marked proneness to wasting.

What I wish to have shown is that there is a class of diseased actions in the cellular elements of tissues which are easily excited by irritations that do not affect the intercellular (connective) elements. They are caused by slight causes—too slight, at least, to evidently arouse the connective elements. Yet the swelling attending them is great if the multiplied cells are confined in the tissues, as in glands, and so are unable to escape; while if, on the other hand, the irritation is to a free surface, the new cellular elements slip away in the accompanying flux of secretion, causing catarrh of the surface.

Another character of these catarrhal irritations is that their duration is like the duration of the cellular elements, whose multiplication is their tangible part. It is short-lived.

Now, to my mind there has always been present one difficulty, in considering the history of what are called inflammations, which is greater than all the other difficulties, and that lies in the manifold differences that the so-called inflammations offer among themselves. The catarrhal irritations I have described are inflammations—so, too, are pyæmic abscesses; and so are lupous ulcerations; so are chronic indurations of the lung; so is an erythematous blush. In the common history of inflammation as a process of exudation from vessels, we see no hint at a reason explaining these differences.

I am trying to show you how far, by considering the elements which these different processes are worked out in, we may see the grounds of the differences in the inflammations by observing a correspondence between the kind of pathological action which the elements in question evince in their irritation, and the sort of action which those elements exert in their natural functions.

While recognizing that cellular elements function by multiplication, we can infer beforehand and the more readily discern that they shall be the elements which show catarrhal irritations under slight acute excitements, and that they shall be the parts which most readily undergo great hypertrophies.

If now we look to the tissues which have no cellular elements in them—such as bone, fascia, etc., whose composition is all intercellular—we find that such irritations as cause catarrhs of mucous surfaces (such as exposure to cold, for instance) will not produce any multiplication of elements in them. If my clothes get wet, I may get a catarrh in my nares and trachea, with a distressing amount of proliferation of their epithelium and flux of mucous secretion; but if the irritation, instead of attacking my nares, fixes on my lumbar fasciæ, then there is no flux, no suppuration, no lymph—nothing, in fact, of that kind to correspond; there is only pain and stiffness. Why is this? The reason is that cellular elements easily multiply, and so such an irritation to the seat of cellular elements causes catarrh; but intercellular elements don't easily multiply, and hence the same irritation causes no catarrh on the fascia which is wholly composed of them. Its pains are the

equivalents of catarrh. So rheumatism is catarrh of the fascia, and *vice versâ*, and the entymological connection of the words is justified.

We have already partly seen, and shall continue to see further, that the variety of modes in which the compound tissues develop morbid products at a slow rate is very great. These processes or modes make up what are variously called hypertrophies, indurations, chronic inflammations, and so forth. We must learn that a large part of the differences, in different chronic inflammations, does not lie in a diversity of sorts of changes occurring indiscriminately in the parenchymatous elements of the tissue, without regard to their nature and habits, but rather they lie in the limitation of the process to different tracts of those different kinds of elements that go to construct the organ concerned.

We shall have, further, to be impressed with the truth that any of these chronic processes is liable to be exaggerated to such a pitch that a new order of phenomena arises. The healthy nutrition, with its evenly distributed flow of nutritive currents, is in these lower degrees only altered in its balance; but, after a certain pitch of intensity, it is overpowered or exaggerated out of all character. It becomes enormous, and the changes then are accompanied by pain, heat, redness, and swelling on a great scale. Then we say there is inflammation in the old Galenical sense. So that inflammation is *not one thing*, but the *climax of many*—nay, of any textural change. Nevertheless, its phenomena, whatever its origin, are so important that the continued recognition of it as a definite thing in therapeutics is essential.

We have already had under consideration these phenomena of Galenical inflammation, when studying inflammation from the point of view which the changes seen in the vessels afford. What I now want to show you is that the microscopic elementary changes which we are at present considering—those changes which arise in the nuclei and cells of the textural elements—stand to the vascular changes as antecedent and causative of them. The extent to which these changes in the cellular and intercellular elements create inflammatory fluxion, with its attendant phenomena of pain, heat, redness and swelling, is dependent on the degree of severity they reach. And it is important to recognise the truth

that the processes of elementary multiplication, which make the microscopic part of the history of inflammations, may lead to thickenings, etc., in the textures and yet may be so slow and so feeble in intensity that the Galenical phenomena never arise, or, at least, may escape notice. Thus, we often find extensive thickenings—say of the capsule of the liver—in cases where there has been direct denial of any pain in the side; and the question arises—are these thickenings inflammatory; were they caused by inflammation? Pray see how far this is a question of terms. If by inflammation you mean the heat, pain, redness, and swelling which define it at the bedside, then the thickened capsule was not "caused by inflammation"—there was no inflammation. You would probably call the process of thickening "hypertrophy," or, perhaps, be content to say "irritative thickening." But, if you include in your idea of inflammation the process of elementary multiplication as its leading and causative factor, as you are sure to do if you aid your perceiving power by a proper use of the microscope, then you will be disposed to consider the thickening as essentially inflammatory, and will express your view by saying that the irritation, of which the thickening was the result, was too feeble and slow to evoke active vascular changes of such intensity as to draw attention. When, however, you have come to see that those active vascular changes which of old received the name of inflammation are only phenomena created by the texture multiplications, and thus are secondary, and, indeed, hold the same relation to the multiplication as the light, heat, and other imponderables that appear in fire do to the tangible matter that is burning there, then you not only have a clear sense of the clinical and pathological use and import of the word, but are reconciled to its derivative signification, seeing that the Galenical four are the flame of the elementary microscopic change, which underlies them as the chemical interchanges underlie common combustion; and which, like those chemical changes, may be so slow and feeble as to progress without exciting them. And just as slowly oxidising phosphorus is liable to burst from its flameless smoulder into fierce burning, so the slower forms of elementary multiplication which create painless thickening may light up into acute inflammation. The example I have chosen in the capsule of the liver may well serve again as an

instance. How often we find these thick capsules coated with recent acutely formed lymph. How often do we find an inflammation light up on the surface of such a liver, and, spreading over he whole of the peritoneum, kill by acute general peritonitis.

I think we should thus recognize inflammation as the climax of severity of a great variety of processes, just in the same way as combustion is the climax of a great variety of processes. The burning of chlorine in hydrogen, or of sulphur in iodine vapor, is equally a combustion; and without going so far for our illustration, we all know what various substances—such as gas, wood, or tallow—in an ordinary way will make practically the same kind of flame when they are lit.

To sum up, then, that we may proceed in our inquiry. The view I want you now to take of all these processes that are called irritations, hypertrophies, indurations, and chronic inflammations, or subacute or sub-inflammations, is that their differences arise out of the properties of the kind of elementary component texture they involve, and that from this point of view the differences of the various slow processes that occur in any organ may be better understood; but that, given a certain or rather an uncertain augmentation of their violence, and then their differences are nothing to the point. The process of acute inflammation has prevailed, and the import and moment of the affair now is a question of vascular congestions and stases and the results of these, just as the pathologists of the bygone thirty years have described them.

Now let us proceed to examine the dealings of the intercellular elements under such irritations as compel them to multiply.

There is no tissue which has not got some of these intercellular mechanical tissues in it, to give shape and consistency to the organ. The arteries and nerves, the brain, even the retina—every tissue has intercellular elements in some form, modified to suit the requirements of the part. To describe in detail their various modes of distribution would be to give you the whole range of histology in detail-outline.

And hence it is very important for us to know the pathological habits of this group of elements in a general way; for the changes in these elements make a very important class of diseases in all organs.

Some organs, as the bones, joints, and fasciæ, which discharge purely mechanical offices, are composed almost entirely of such elements, the other elements, such as bloodvessels, and nerves, and marrow-cells, only entering into their composition in the same subsidiary way in which the connective elements enter into the brain, or kidney, and other properly vital organs.

Now, remembering what were the characteristic dispositions of the cellular elements—namely, rapid multiplication from slight causes, easy subsidence to the natural volume, and corresponding tendency to atrophy under states the opposite to excitement—if we observe the pathological habits of the intercellular group of tissues, we shall see they are very different from these. I think they may be stated thus:—

1. The causes that give rise to sudden increase or diminution of their quantity require to be more severe; and the causes of slow increase more prolonged.

2. The resulting increase of the intercellular elements, if they are hastily produced in numbers, as in severe acute irritations, produces a very grave effect on the organ concerned—an effect which partakes of some of the characters of what is called "malignancy."

3. But if the new intercellular elements attain organization, the increase is permanent.

As to the first proposition, I have already dwelt on it in contrasting catarrh with fascial rheumatism, seeing that catarrhal irritation, which produces a free epithelial flux, has no such effect on the fasciæ. But this first proposition is for the most part rather an aspect of the second; for we generally can only infer the severity of the cause—of which in so many diseases we are ignorant, or, at least, whose force we cannot measure—by the severity of the effect which this second proposition affirms. The second and third propositions often apply together to the severer subnflammations of compound tissues, many of which include both a grave destruction and an equally pernicious formative change progressing together.

We must oberve that if the new elements produced in the multiplication of intercellular tissues are got in large quantity and hastily, then we are no longer dealing with a fact of the same significancy as when cellular elements multiply and produce cells.

For the new elements so quickly arising have not the characters of the mutually connected parent connective cells, but are free, rounded, or caudate, and approach the character of epithelium (lupus), or of white blood cells. Neither can they be regarded as the earlier stages of cells like their parents; for being thus hurriedly made, they could not rise to the full development—they are lower things, with different tendency. We see that the tissue has produced forms unlike its own. Do you say, What of that? Well, if we agree in Virchow's able and original generalization of the doctrine of heterology, we shall see that very important consequences follow from the production in a tissue of forms unlike those proper to it. The new forms are heterologous and proportionally malignant, so that they tend to infect—and, indeed, is it not an admitted truth in general pathology, at present, that all living pus developed from areolar tissue, corium, or any intercellular elements is contagious. They are heterologous. On the other hand, catarrhal cells, pus-like as they may be, are not so. But when the new connective elements are produced slowly, they never differ from their adult form, as in simple divisions of the cells; or whatever differences they have, are only those of young things from old things of the same kind, which time will conduct to the parent's form, and, in the case of these elements, to the parent's permanency. If you watch the most prolonged irritations of epithelial (cellular) elements of the skin, you will find that if only you can remove the irritation, whatever that may be, the resulting thickening vanishes. Take as an example, the case of a postman with paraplegia, the soles of whose feet will quickly lose their thick epithelial cover; or, as another example, the case of common lepra, counteracted by arsenic—all the morbid product is soon removed. Bnt, if instead of the epithelial (cellular), the irritation has increased the corium or subcutaneous (intercellular) elements equally gradually, so that they have had their time for organisation as they formed, then you can no more think of removing these than you would think of removing the fascia lata with physic.

Now to proceed to practical illustrations of these doctrines, and show the respective actions of the cellular and intercellular forms when side by side in the compound tissues.

We can contrast the active changes of the cellular and intercellular groups by taking as instances the same organs as we in the last lecture used to show the effects of cellular irritation—for all the organs that contain cellular elements contain also intercellular; and we shall find, in the same tissues as have furnished us with examples of the facility and benignancy of formative changes in the cellular elements, sufficient evidence of the obstinacy or severity of formative changes in the intercellular elements.

To begin with the skin: we observed before that those skin diseases that were characterized by multiplication of the epidermis were slighter and more transient, and leave no scars behind, and were more amenable to remedies Take the skin diseases that depend on derangements of the epithelium, and you find them short-lived, and nearly all curable by arsenic. We will not instance the eruptive fevers, for in them the disease of the skin is but the skin of the disease; but take the group that are called "Squamæ"—namely, lepra, psoriasis, and pityriasis; or the "Visiculæ" (Sudamma)—herpes and eczema; or the "Bullæ"—pemphigus and rupia; or the "Pustulæ"—ecthyma and impetigo; and of the Papulæ lichen, which is a heap of epidermic cells about the mouth and hair follicles.

In all of these that are accompanied by excessive production of cellular elements—and all of them at some time in their history do produce an excess of these—the use of slight local treatment of a stimulant kind, combined in some cases with arsenic internally, will soon get rid of the disease—*provided always that the disease remains limited to the epidermic tissues.* When, as in rupia, or inveterate psoriasis, or eczema, or lichen ruber, the intercellular tissues of the corium take on action, then the disease is obstinate and severe.

If now we take those skin diseases that implicate the true skin with its intercellular elements, we find them very obstinate and unmanageable.

These diseases make the family of Tubercula, and are—elephantiasis, molluscum, acne, lupus, frambæsia, and keloid. If we look over this series we see that they include very obstinate and uncontrollable diseases, requiring severe measures for their cure, or curable only by removal of the affected part, or quite incurable.

As to their real nature, they are all of them founded on an increase of the intercellular elements of the skin, or of the skin and subcutaneous tissue. Some are more acute and some chronic, and those that are acute approach near to malignancy. Lupus consists, as far as its anatomy goes, of a production of fresh connective tissue elements. These fill up the spaces in the areolar tissue, and are either caudate if the process be slower, or pus-like if the process be severer. Indeed, a certain extent of suppuration will be sure to accompany the process at some time. The formation of connective tissue is often very considerable in lupus, and gives rise to the thickened, brawny state of the diseased skin, while it remains as dense scar-substance at the healed spots. In some cases of lupus in the hand, the hand becomes much distorted and misshapen by the contraction of the scar tissue. In more acute lupus, the new elements of skin connective are produced too hastily for plastic formation, and they and the tissue which produces them perish together, producing lupus exedens, and perhaps rodent ulcer, which some think to be cancer.

Generally the epidermis is little affected: it grows dry and cracks, and is broken through by the ulceration, and the sebaceous glands and hairs disappear from the part, though a few may remain. But sometimes the epidermis is produced in great quantity, so that a scaly surface covers the diseased patches, and the condition called psoriasis lupus is produced.

If we now take the very obstinate disease, acne and sycosis, this is what we find—the hair-roots are the parts essentially implicated; so that it is commonly and rightly said to be a disease of the hairs and hair follicles. But the obstinacy of the severe forms of this disease is not due to the hair follicles, but to the circumstance that suppuration occurs in the skin around the hairs; and in severe cases, also permanent connective tissue is formed, and the skin is thickened and scarred. This formation of new connective in the skin reaches its highest development in frambæsia, where the thickened skin, with hairs passing through it, rises off the surface in a little prominence, having the look of a raspberry. The hairs whose follicles by their inflammation have created this little mass still pass through it, and pus points are seen in it on section. That most unsightly disease, acne rosacea, in its later stages, shows

decided increase of the connective tissue in the skin, along with its inveterate obstinacy. In true leprosy, also, there is a growth of these intercellular elements in the corium, thickening the skin to the production of the characteristic tubera. They are described by G. Simon, and by Daniellsen and Bock as rounded and caudate corpuscles, in the meshes of the cellular tissue of the corium; and while the connective thus thickens, the hairs and glands in the skin waste, a few glands enlarging. In the dissecting-room is a drawing which shows masses of such corpuscles round the veins from a case of leprosy that lay for a long time in Stephen ward. Dr. Carter has described the like increase of connective tissue corpuscles as occurring in lepra anæsthetica in the nerves of the limbs, causing them to swell, while the nervous matter wastes.

In elephantiasis and vitiligoidea, on the other hand, which are chronic, and of low intensity, there is no acuteness and no malignancy, but only an intense obstinacy. The same is the case with Addison's keloid, which was believed to be permanent, but Dr. Fagge's important researches have shown that after lasting a great while it may disappear.

From this review of diseases of the skin we learn that obstinacy and severity in the characters of any of them goes with the affection of the intercellular elements which compose the corium, while diseases that affect the cellular elements are both milder and less lasting.

Indeed, when considering the several diseases which in their earlier stages limit themselves to the epithelium, or hair, or follicles, we find that they only retain their proper characters so long as they limit themselves in this way, and that when the diseases get deeper hold, and cause increase thickness of the connective elements in the skin, then they acquire a common character of severity and obstinacy, which may be said to reduce their difference to very little. When lichen has become lichen ruber, and eczema or psoriasis have become inveterate, then to all intents and purposes they have acquired common characters, and will need the same management—rather, perhaps, will equally obstinately resist management. They might as well be elephantiasis or ichthyosis, for which, on the lower extremities, examples of them may be mistaken.

We often find that a variety of opinions are given as to the proper name of such cases. What guides us to the true view of their origin is the history, coupled with any recent patches that may be present; and while we are glad to discern this, it is important that we should recognise that, having caused hypertrophy of the corium tissue, they have raised a new problem. For the new connective has all the disposition which the corium itself has, through its intercellular elements, to remain in a complete state of development when it anyhow attains to it.—*London Med. Times and Gazette.*

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

THE PRACTICE OF MEDICINE. By Thomas Hawkes Tanner, M. D., F. L. S., &c., &c. Fifth American (from the sixth London) edition. Enlarged and thoroughly revised. Philadelphia: Lindsay & Blakiston. 1870.

NEARLY twelve hundred pages of reading matter in a book where the author aims "at adopting a style which should be terse, without appearing obscure," furnish good reason for congratulation that the author should have "aimed" at such a style, whilst at the same time it fairly warrants the supposition that the "arrows of his aim" flew very wide of the mark. The fact is, a little more terseness in the scope of the work is, after all, its principal desideratum.

Why any man should undertake to furnish in a single volume a treatise not only on "The Practice of Medicine," as the title-page proclaims, but also on the practice of surgery and obstetrics, as the index clearly shows, passes comprehension. Surely it is a mistaken ambition to desire a reputation for universality of knowledge rather than for perfectness, or the nearest possible approximation thereto, in one or more useful branches of our extensive field of research. If the writer of such a voluminous work as that under discussion is actuated by no such ambition, we fear there is at least a suggestion of egotism in supposing that he has acquired such a knowledge of so many themes as to constitute it a moral wrong to keep from his professional brethren any part thereof. Yet Dr. Tanner is a distinguished member of the profession, and his book has gone through five editions. The profession have in effect said, "it is well," to the book in its entirety, and we are not disposed to break our puny lance upon so formidable an adversary; yet we cannot but think that the standard of knowledge would be farther advanced if a single standard-bearer did not, with however laudable a purpose, seek to carry all the colors of the brigade. Our author quotes, modestly enough, from Dr. Arnold: "That so long as you

humbly learn, so long may you hopefully teach;" but we submit, with all deference to two such distinguished authorities, that, though humility be a proper or essential element in all learning, yet the phrase were better written: "So long as we thoroughly learn, we may hopefully teach," and only so long; and, furthermore, that thoroughness is incompatible with such comprehensiveness as is indicated by a glance at the index, where we see a long list of "General Diseases," "Fevers," "Venereal Diseases," "Diseases of the Nervous System," "Diseases of the Female Organs of Generation," "Diseases of the Skin," "Diseases of the Appendages of the Skin," &c., &c., &c., with about a hundred pages of "Formalæ."

We cannot, of course, profess to have carefully read so discursive a volume, or to be qualified for judicious criticism of so many subjects; but we shall endeavor to glance at some one or more of its many parts. And first we pause to invite the attention of army medical officers to the most suitable method of avoiding sunstroke in "soldiers traveling in a tropical country," condensed by Dr. Tanner from Dr. Aitken, each of whom may, with great propriety, be fairly entitled the soldier's friend. "When a march is to be undertaken in India during hot weather, the weak and sickly had better be left behind." (Nothing could be more judicious.) "The costume should be suitable for the early morning hours before sunrise, as well as for the scorching heat which follows." (Presumably a comfortable woolen suit, with warm "wrappings" before "sunrise," and white linen undress uniform "for the scorching heat which follows.") "A flannel shirt is a safeguard against sudden chills." (Who can doubt it?) "A flannel belt is an advantage, except in the hottest weather. The shirt collar ought to be open." (When the soldier is the fortunate possessor of such an article; if not, and he should not even have a shirt, the coat collar should be closely buttoned—we beg pardon, pinned with a thorn—about the neck.) "A light knapsack should be allowed, which does not require the use of cross belts." (In which nothing should be carried but a light sandwich and a bottle of ice tea—green tea to be preferred, while the change of uniform and the soldiers' blankets should be carried by attendants, of whom each soldier should have one.) "The troops should march 'easy'

and loosely clad, at a pace not exceeding three and a half miles an hour." (If Drs. Tanner and Aitken think three and a half miles an hour "easy" marching, we should just like them to try it.) "With a halt when the men are exhausted, and with a longer halt half way, so that each man may have a biscuit and a cup of coffee." (Certainly it would be very grateful to them; best mocha and light rolls.) "The men ought to arrive on the *new* ground about an hour after sunrise." (Charming! Dressing gowns and cigars should then be provided, with which to wile away the loitering hours until about an hour before sunset, when they should proceed leisurely to the next "*new* ground," where comfortable quarters for the night had previously been prepared.) "The men ought to be provided with an ample supply of water; and, lastly, all rations of spirits should be discontinued." In a book in which the author "aims at a terse style," we submit that marching soldiers had better not be meddled with unless the writer has first seen a soldier.

We pass on, with an apology for the triviality of such criticism, to the article on pneumonia, where we are gratified to find so experienced a physician as Dr. Tanner advocating the expectant plan of treatment, as that plan "which both my reading and experience have long taught me is much the best, not only for the ultimate safety of the patient, but even for diminishing the duration of the disease." His views upon the pathology of the disease are in some particulars unsettled, and we find him halting between the theory of Dr. Waters and that of Dr. Morehead: "Whether the capillaries of the pulmonary artery or those of the bronchial arteries, or both sets, are the vessels mainly affected in pneumonia, is a question which has not been positively determined. Dr. Waters has argued that the branches of the pulmonary artery which constitute the pulmonary plexus are the nutrient vessels of the air cells and the seat of inflammation in pneumonia; because, although the bronchial arteries pass along the bronchial tubes and supply the structures of those tubes and the connective tissue of the lungs, yet they send no branches to the walls of the air-sacs, which are solely occupied by the plexus formed by the pulmonary artery. Dr. Morehead, on the contrary, has reasoned that if inflammation be an altered state of the nutritive processes of the affected part, then the capillaries immediately concerned in inflam-

mation must be those which in their normal state circulate arterial blood for nutrition; that the blood which is a factor in inflammation must be the blood which normally is a factor in nutrition. It is maintained, therefore, that capillaries of the bronchial arteries are those immediately concerned in the nutrition of the air-cells, and therefore in pneumonia; chiefly for the reason that they are the nutrient vessels of the visceral pleura, of all the tissues of the bronchial tubes, the coats of the blood-vessels, the nerves and lymphatics, and the connecting areolar tissue of the lungs, as well as the seat of inflammation in visceral pleuritis and bronchitis." Both gentlemen seem to base their argument upon the assumed fact that the lung receives its nutriment through that set of capillaries which they consider chiefly concerned in the inflammatory condition. The question with them then seems to resolve itself into, Does the lung receive its nutriment through the bronchial or through the pulmonary artery? and we fail to see the point or force of the argument, however this question may be decided. If these gentlemen use the term "concerned" in the sense of involved —and we infer so from the fact that Dr. Waters speaks of the capillaries as the "seat of inflammation in pneumonia"—we cannot see what their office of conductor of nutriment has to do with it. They themselves are nourished, are living structures, and hence are capable of taking on inflammation, in which nutrition is a factor, not by virtue of their office as conductors of nutriment, but by virtue of their vital endowment as receivers of nutriment, which endowment cannot be questioned, nor is in any way involved in the question which of them carries nutriment to the air-sac. Do we not have inflammation of a vein? According to Mr. Moxon, inflammation consists essentially in "numerical cell hypertrophy." Accepting his theory, we are left to conjecture the source of "cell hypertrophy." Mr. Moxon seems to accept the theory of Virchow, that it is the "connective tissue corpuscle" that undergoes proliferation; but Dr. Tanner tells us that "there is no connective tissue between the air-cells to get inflamed." If this be the case, we are then driven to the adoption of Dr. Beale's view, that the inflammatory act consists in the proliferation of small masses of germinal matter which have exuded through the walls of the vessels. Now germinal matter is found in venous blood as in arterial, at least we

are not aware that venous blood has been shown to differ in this respect from arterial, and therefore again it matters not whether the pulmonary artery contain blood capable of nourishing the air sac or not; it is, in either event, capable of furnishing exudation corpuscles, and, therefore, of being directly concerned in the inflammatory act. But we cannot pursue this subject farther, and must take leave both of it and the book. Dr. Tanner has furnished little that is original, but his book will be found to be a most admirable compendium of the state of medical science. It evidences careful and judicious research, and, indeed, of its kind we know no better book; but the kind is, in our judgment, of more than doubtful utility, and it may be regretted that so able and learned a man had not devoted himself to one or two subjects of investigation, thereby *adding* something to our knowledge, rather than simply collating the results of the investigations of others. The publishers have done their part well.

THE PATHOLOGY AND TREATMENT OF VENEREAL DISEASES, INCLUDING THE RESULTS OF RECENT INVESTIGATIONS UPON THE SUBJECT. By Freeman J. Bumstead, M. D., etc., etc. Third edition, revised and enlarged, with illustrations. Philadelphia: Henry C. Lea. 1870.

WHEN we reflect upon the extent to which venereal diseases abound, and the facilities our hospitals offer for their investigation, it is surprising that there should still be so much doubt and difference of opinion as to their nature and treatment. This is specially true of syphilis, which at first view seems so well characterized in all its different stages by clearly marked symptoms; and yet we find the most opposite opinions as to its pathology, and the greatest discordance in stated results from opposite modes of treatment. The book of Dr. Bumstead is, to our minds, decidedly the clearest and best we have seen upon venereal troubles. We think it the safest guide in the hands of the profession. He has carefully compared the views of the many authors who have of late years so enriched the literature of this subject, and, judging them by the light of his own great experience, has given the results in a clear and forcible way. The present edition is revised and brought up to the most recent advances made in this field, and much new matter has been added. We most cordially commend it.

PRACTICAL ANATOMY: A MANUAL OF DISSECTIONS. By Christopher Heath, F. R. C. S., etc., etc. First American (from the second English) edition. Edited, with additions, by William W. Keen, M. D. etc., etc. Philadelphia: Henry C. Lea. 1870.

ANATOMY, the groundwork of all true medical science and practice, is too much studied from books, to the exclusion of thorough dissections, by which alone a proper knowledge of it can be obtained. Any work which shall conduce to a more general and a closer study of practical anatomy must be a valuable acquisition. The works of Mr. Gray and others are excellent of their kind, but their mode of teaching descriptive anatomy, by a detailed examination of organs, is bad. What the practitioner most needs, is a knowledge of the relative positions of the various parts of the body, and these can only be learned from observation in the dead-house. The book of Mr. Heath is the best of its kind we have yet seen. The additions of Dr. Keen are judiciously made, and the illustrations are numerous, and passably good. We earnestly commend the work to teachers and students.

EDITORIAL.

It is only necessary to glance over the advertising columns of the daily and weekly papers, to form a tolerably correct estimate of the extent to which the community is being duped by quackery. From the magnificent Helmbold, to the less pretentious salve venders, are daily paraded the most specious promises, the most wonderful cures, all of which are eagerly perused by the thousands seeking alleviation from real or fancied ailments, and none of which are too miraculous to find ready credence. The extent to which these "specifics" find a sale can be easily computed by the vast sums spent in advertising and accumulated by their authors. Nor are the patrons of "Buchu," of "Bitters," and of "Wizard Oil" only to be reckoned in the more ignorant classes of the community. Men of education and culture may not infrequently be heard lauding the virtues of their favorite panacea. Men of business, clear-headed and shrewd in all things else, are credulous of their magical influence. The evil is extending so widely as to demand the earnest attention of the profession. That it is in great part due to a craving for the mysterious, that it is rooted in the natural superstition of man, there can be no question. But is not the medical profession somewhat to blame? Have we not greatly aided in promoting the mischief by inadvertentlv encouraging a general belief in the mysteriousness of our art? Are we not too prone to convey the idea to our patients that we give physics to meet some condition, well known and understood to ourselves, but inexplicable to the uninitiated? We are too apt to speak

vaguely of congestions, of sympathies, of altered secretions, in such manner as to imply that they are each to be reached and cured by the drugs we prescribe. How often are we seduced by the patient, or his friends, into an attempted explanation of signs and symptoms, that but increases the obscurity of their conceptions, and that we feel is no explanation at all? The fact is, that, for generation after generation, the medical profession has been cultivating the very susceptibility to quackery that we now so bitterly denounce and deplore. The argument that this course is necessary that we may gain the confidence of the patient by appearing to thoroughly understand his case, is utterly fallacious. To the individual, it may have some force; to the profession generally, it has been most injurious. To compete with acknowledged empirics in their chosen field cannot but result disastrously. Until medicine becomes a more positive science than it is now, the only hope in exterminating quackery is to be found in educating the public, not to a blind faith in ourselves, but to a fairer appreciation of the true state of our science, and of the resources of our art. To explain to the popular mind the imperfections of medicine as a science, rather than to expatiate on its achievements, seems to be the course dictated alike by honesty, and by true policy. When the public can be brought to understand that diseases are not entities, to be combatted by specifics, but that they are simply disarrangements of the machinery of the body, in each case to be judiciously investigated and corrected by the light of anatomy and physiology where practicable, by a judicious empiricism where science fails, quacks and specifics will disappear forever.

The recent advances in all branches of physical science have opened the way to the solution of many problems in physiology and pathology, and the future is full of promise.

For the present, practical medicine must be mainly empirical; and it is both unwise and impolitic to claim more for it before the public than it fairly merits. A rational empiricism implies a practice founded on common sense, aided by all the lights of science, and is equally removed from a blind faith in specifics, as from the certainties of an exact science. The popular mind cannot be content at this day with the uncertain results of practice, while holding the pathological views of a past generation. It can be educated to a truer idea of the possibilities of therapeutics, and to rely rather upon the common sense practice of educated men, than the nostrums of ignorant pretenders.

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ORIGINAL COMMUNICATIONS.

ABSCESS WITHIN THE CRANIUM.

BY PROFESSOR N. R. SMITH.

IN the summer of 1869 I was consulted by the Rev. M. C., of Virginia, of the Episcopal Church, in regard to the results of an injury of the cranium, which injury was sustained twenty years before. The injury was inflicted by an accidental blow from a sharp stone, on the left parietal bone.

The blow was followed by inflammation of the pericranium—suppuration and detachment of that membrane from the bone. Then followed necrosis, and a final separation and discharge of a small sequestrum, involving both tables of the bone. There remained a fistulous opening, which never closed during the long period of twenty years. It so little interfered with his general health that he continued, during that time, to discharge the duties of his calling, though occasionally suffering pain in the head and vertigo, especially when the discharge was in any way impeded.

Dr. Van Bibber, of this city, saw and examined the case with me. We found the fistulous orifice surrounded by granulations, which in a measure impeded the discharge. The pus which was daily discharged was of ordinary consistence and appearance, but was fetid.

We inserted with care an ordinary probe, which, to our surprise, sank by its own weight, apparently through a fluid, into the cavity of the cranium fully two and a half inches, when it encountered the membranes of the brain. By exploring with the instrument cautiously, in different directions, we ascertained the existence of a hemispheroidal cavity within the cranium, almost coextensive with the parietal bone.

On withdrawing the instrument, we found it covered with fetid pus. The opening in the cranium was smaller than a quill, and was obstructed by granulations investing its canal. The efforts of nature to restore the normal condition of the parts were defeated by the inadequacy of the discharge, and the occasional aggravation of symptom was attributable to the increase of the granulations, which obstructed the flow.

I immediately advised, Dr. Van Bibber concurring, that the crown of a trephine should be applied, and a button of bone be removed from the cranium.

With the aid of Dr. V., I immediately applied a trephine about seven-eighths of an inch in diameter. The progress of the section was slow and difficult, the bone being found of ivory hardness, much thicker than common, as seen in the engraving, and of unequal thickness in various parts of its circumference. We proceeded, however, without hesitation, knowing that the membranes were far removed from the inner surface. At length the button was prized out, and there immediately issued some three ounces of fetid pus.



We feared some disturbance of the cerebral functions from the sudden removal of such pressure from that organ, but nothing notable resulted. We applied light dressings, so as to allow the discharge to flow without impediment.

No morbid phenomena of any kind resulted. By inspection and by the probe it was ascertained that the dura-mater was slowly rising and the cavity being obliterated. He left us in some ten days after the operation.

I saw the patient last summer on his journey to the Episcopal Convention. He had entirely recovered.

THE THERAPEUTIC USES OF QUINIA.

BY A. B. ARNOLD, M.D.

[Read before the Baltimore Medical Association.]

THERE is no article of the Materia Medica which has been made the subject of more general study than cinchona and its preparations. The leading fact that Peruvian bark in malarial fever acts preëminently as a specific, naturally excites curiosity to ascertain in what manner this drug checks with such remarkable promptness a violent and threatening disturbance of the whole system. Despite the discordant views concerning its physiological and therapeutic action, there is no remedy in practical medicine on whose efficacy greater reliance can be placed. Around this central clinical fact all the rest revolve, and it must be kept in constant view in any attempt to construct an appropriate theory.

It is no easy matter, and systematic writers are aware of the difficulty, to classify a remedy of such special therapeutic qualities as quinia. The shortest way of solving the question would be the assumption that quinia comports itself as an antidote of miasmatic poisoning. But, besides

our utter ignorance of the exciting cause of malarial disease, and the slight analogy there exists between the curative effects of quinia and the neutralization of inorganic chemical reagents, there is the further objection to be met, that a number of differently constituted substances, as well as moral effects, put a stop sometimes to the paroxysms of intermittent fever. Nor does our knowledge of the chemical composition of cinchona help us to arrive at an explanation of its febrifuge properties. We only know that those of its preparations that contain nitrogen exhibit the real antiperiodic effects.

Hardly less satisfactory have been the efforts of ascertaining the physiological effects of quinia with a view of inferring its therapeutic powers. The results obtained by equal close observation and direct experiment show a singular want of uniformity. We are told that quinia in moderate doses has a stimulant effect on the circulation, producing increased cardiac action, frequency of pulse, cerebral excitement and a congested state of the respiratory organs. When given in large doses an opposite train of symptoms of a decided sedative character is observed. This change of symptoms, according to Dasage, bears therefore, some analogy to the well-known effects of alcohol. As an offset to this, we have reliable accounts which attest the sedative influence of quinia when given in small doses, while enormous doses have not been followed by the least injurious consequences. An eminent American authority has drawn attention to the circumstance that the curative effects of quinia are observed when its stimulant effects have already ceased; and, on the other hand, exceedingly large doses have cured the most violent and dangerous remittents, which ought to have added to the mischief if it be true that heroic doses of the drug have a sedative, and, therefore, a depressing influence. But the admission that

quinia is capable of setting up functional disturbance, and may therefore modify morbid conditions, is by no means evidence of its sedative qualities. Neither is that explanation worth much which alleges that the improvement of the nervo-muscular power in exhaustion and debility, after a course of quinia, is owing to the tonic virtues of this remedy. Be that as it may, it is certain that the powers which cinchona displays in the cure of malarial disease is over and above that which it shares with calombo and cascarilla.

Not long ago the journals brought us the report of some highly interesting experiments, undertaken by Prof. Binz, for the purpose of determining the action of quinia on the state of the blood. The results he obtained appear to prove that this agent diminished the number of the white blood-corpuscles, and he concluded that quinia possessed decided antiphlogistic properties. These results were subsequently confirmed by Spurrenbroick and Martin, who had engaged in a similar course of investigation. Interesting as these experiments certainly are, and fruitful as they may become in a practical point of view, they nevertheless throw no additional light on the therapeutic action of quinia in malarial disease. Although the post mortem appearances in animals which had been poisoned by overdoses of quinia, show extensive enlargement and congestion of some of the viscera, yet no approach to an inflammatory state in these instances could be noticed.

There is still another way open to construct a theory of the therapeutic action of quinia, which has often suggested itself to medical men. This theory is founded on the belief that the symptoms of malarial disease are caused by the introduction of some morbid material, which the counteracting influence of quinia is supposed to eliminate from the system. The changes which the blood undergoes, according to this view, and the consequent disturbance of the circula-

tion, initiates and continues the fever until quinia, by stimulating the excretory functions, throws out of the system the foreign product which has been the cause of the febrile movements. This explanation has much in its favor, besides the assent of a large number of distinguished men whose opinions carry great weight with the profession. In witnessing the phenomena of fevers, whether infectious or malarial, the suspicion lays near that some kind of poison is at work. Diseases of this order, more than of any other, offer the strongest evidence of the presence of an agency which deeply affects the composition of the blood and attacks life at its very fountain. Through no other channel can a toxical cause be so easily transmitted, and enter into more varied relations with tissues and organs. The stage of incubation, the full development of febrile excitement, the nervous prostration, and the efforts of crisis, which is the elimination of the products of decomposition, all point to the invasion of a blood poison. It is now generally believed that, at least in what are called zymotic diseases, a process resembling fermentation or catalysis underlies the characteristic symptoms of the fever and its complications. Important and indispensable as these considerations are in forming a correct knowledge of the etiology of fever, yet they had engaged the attention of pathologists in an exclusive manner, and left unnoticed the profound meaning of the part which the nervous tissue plays in fever. Virchow, who touches nothing but what he leaves better than he found it, was the first who gave due prominence to the nervous element in the production of the febrile symptoms. Dr. Parks, the able English exponent of Virchow's views on pyrexia, very justly remarks that not all infections produce fever. Cholera, for instance, is a highly infectious disease, but it is not essentially feverish; and, conversely, pure inflammation and traumatic causes produce a high

state of fever, into which no element of infection enters at the initial stage. It may now be asked, how then is fever brought about? Fever is brought about only when the nervous system, in its most important parts, is attacked by the toxic agent, or when by other causes, either bodily or mental, in the absence of blood poisoning, the moderating control of the nerve centres is resisted or enfeebled. This statement avoids the controversy about the original seat of fever, for it implies that, at least in zymotic disease of whatever type, the blood and the nerves are the joint factors. Virchow, however, maintains the more special proposition that since the rise of temperature which follows increased consumption of tissue, is the essential and distinguishing mark of fever, it therefore appears to have its immediate cause in alteration of the nervous system. The theory involved in this proposition does not only harmonize with the great majority of facts, but has the additional merit of laying particular stress on the proximate cause of fever, with which the practitioner has principally to deal. It would be irrelevant to undertake a lengthy exposition of this theory of pyrexia, and the more so as its applicability is here only intended to be put to the test in explanation of the therapeutic effects of quinia in malarial disease.

The marked difference between the exciting causes of endemic and continued fevers, as displayed in the manner of invasion and the course of symptoms, may, therefore, be disregarded for the present, and exclusive attention directed to the leading features of malarial fever. It will at once become apparent that perverted nervous action takes precedence in the order of their appearance. The latency of the morbid influence of miasm is usually very short, and comes seldom under the notice of the attending physician; but whenever noticed it is described as a feeling of lassitude, apathy and tiredness. All these subjective symptoms point

to defective innervation. Far more marked is the characteristic ague fit, which betokens a deep implication of some of the nerve centres. The succeeding high grade of temperature of the body, the cerebral and cardiac excitement, the pulmonary fullness, the nervo-muscular depression, and occasional gastric derangement, allow of no other interpretation than the presence of serious interference with the normal regulating power of the nerve moderators. The same state of things is inferable from the singular periodicity of intermittents and their tendency to relapses, the absence of any discoverable lesions in deaths resulting from the severity of the paroxysm, and the results of physiological experiments which demonstrate that many of the symptoms of fever are witnessed when certain parts of nerves are injured. In accepting the present teaching of pathology, that symptoms of excitement, states of irritability, and faults of nutrition point to debility or defect of vital action, it may be argued, in a general way, that medicines which invigorate the system, and thus remove these morbid conditions, do so in virtue of their tonic influences. The indirect effects of quinia undoubtedly admit of this explanation, and the faith of medical men in its nervine-tonic properties stands unassailed. No one will question the benefit derived from this drug in low fevers and debilitated states of the body, nor ignore the satisfactory results that sometimes follow its use in the great neuroses. But the profession is now fully convinced that, however effectual and prompt the curative effect of quinia proves itself in affections of malarial origin or of a malaroid character, its positive and preëminent therapeutic value is pretty much limited by the range of these diseases. Observation and experience have also decided on the truth of the cognate fact that the more certain diseases evince a periodical tendency, the more likely they will be benefitted by quinia.

If the foregoing remarks concerning the proximate cause of malarial disease be taken into consideration, in conjunction with the admitted fact that quinia, in the majority of cases, cuts short or aborts the consequent morbid phenomena, then the inference naturally follows that this medicine acts in a direct manner on the implicated nerve moderators. All that is taken for granted is the correctness of the therapeutical doctrine which teaches that many remedial agents exhibit what is called an "elective affinity" for certain portions of the organism. This may or may not be an ultimate fact, but as long as this doctrine is not replaced by a better one, it cannot be invalidated in this connection. The drift of this reasoning would eventually place quinia among the alteratives. Perhaps it is the best name for one of the best (because surest) remedies. The term "alterative," I am aware, is applied to medicines whose therapeutic action exercises a healthy influence on perverted nutrition and abnormal deposit, but, in reality this technical designation is rather expressive of every mode of therapeutic effect. Whether quinia possesses the remedial virtues of removing exudations or to hasten the resolution of the inflammatory state is not very clear; at least, experience teaches us to be cautious with it when visceral engorgement is present. Far greater services are derived from preparations of Peruvian bark in what are called functional diseases of the nervous system, and they enter more largely into the treatment of these disorders than any other class of remedies. These results of clinical observation are of great significance, as they add to the strength of the opinion which restricts the curative effects of quinia to the correction of perverted innervation.

A deeper insight into the alterative effects of quinia would be gained, if we could succeed in specifying which of the affected nerve-moderators are influenced by it.

Without wishing to indulge in vague conjectures regarding a matter which yet awaits more exact knowledge, to determine with any degree of certainty, it may be safely asserted: that no greater triumph in the field of physiological research is conceivable, than the discovery of the seat of these nerve-centres, and the laws which regulate their activity. How much, for instance, pathological science has been the gainer by our improved knowledge of the functional relations of the par vagum, and the system of vaso-motor nerves, cannot be overrated. Similar advantages must in the end accrue to therapeutics. Of an inferior scope, though of no less practical importance, is the accurate observation of the action of remedies in the morbid conditions of the body. But, independent of this latter consideration, the attempt is deemed advisable to review from time to time our therapeutical theories, by the light of recent advances in the collateral branches of medicine. Quinia is undeniably one of those substances, whose remarkable remedial powers offer great inducement for renewed study.

In passing from the examination of the therapeutic action of quinia—in the typical intermittents, to the inquiry of the power this drug possessess in controlling a number of affections of malarial origin, but which are unaccompanied by febrile symptoms, we are forcibly reminded of the multiform relations that a special morbid cause is capable of holding towards the organism. As miasm is the most widely distributed of all endemic poisons, there are few practitioners who will not have been surprised at the various shapes malarial disease assumes, and the prompt relief obtained from quinia. In cases of a similar nature, but where the presence of the lurking poison is not suspected, and the happy thought of trying what a good dose of quinia can do suggests itself, a number of therapeutic vir-

tues will be attributed to this remedy according to the bias of the physician. A diarrhœa, a cough, a neuralgia, or a spasm is seen to yield, which had recently shown itself rebellious to traditional antiphlogistics, tonics, stimulants or sedatives. We would be much at a loss to offer some reasonable solution of this therapeutical riddle if we were not prepared to reply, that the peculiar action of quinia in malarial disease breaks in upon the chain of morbid causes which involve the moderating influence of special nerves, as well as of nerve-centres.

The highly interesting and puzzling class of diseases, which some able observers designate as malarial because these affections often give away in a surprisingly short time to quinia, after they had long resisted other modes of treatment, deserves also a passing notice. My own experience has made me acquainted with histories of pneumonia, inflammatory rheumatism, and some equally familiar diseases, that ran a very chronic course until finally checked by quinia. Cases of this character are known to occur at a time when intermittents are unusual, and in localities which are infested by miasm. As remarked by authors, who had considerable experience in cases of this kind, it appears that the malarial emanation may be sporadically developed, or what is more probable, a malaroid cause prevails at times and places, whose presence is only revealed by the curative effects of quinia in diseases which baffle other courses of medicine.

It is a common practice to give various remedies in combination with quinia, either with the intention of preventing its unpleasant effects, or to fulfil certain indications of treatment. Antimony has the reputation of allaying the excitement, consequent on large doses of peruvian bark, and mercury is supposed to remove gastric and biliary derangement—which may oppose the proper effects of this febri-

fuge. This plan may occasionally be adopted with advantages to the patient. As a general rule, however, it is well to remember that the credit ascribed to therapeutical interference, in cases which called for the employment of quinia, is justly due to this drug alone. Nor is it easy to understand on what rational grounds some practitioners hope to intensify the therapeutic qualities of quinia by squeezing it among a crowd of other drugs.

Before closing these remarks, allow me, gentlemen, to refer to an interesting fact in relation to quinia. Of all the therapeutic agents, it is the only one whose virtues extend beyond the sphere of individual well-being. Without it some of the most desirable portions of the globe would be uninhabitable. It behooves, therefore, the medical profession, to which is accorded the praise of practical benevolence, and the distinction of promoting the cause of scientific truth, to maintain in popular favor a precious remedy, weakened as it has been by prejudice and hasty judgment.

CASE OF PERINEORRHAPHY, ELYTRORRHAPHY AND AMPUTATION OF THE CERVIX UTERI AT ONE OPERATION.

BY H. P. C. WILSON, M. D.

[Read before the Baltimore Pathological Society.]

I PRESENT, Mr. President, for the inspection of the Society, in the girl now before you, the result of operations for procidentia uteri.

Some of the gentlemen present witnessed the operations, and are familiar with the case; others have heard of it, and are unacquainted with its termination. It is to bring prominently before the Society the merits of these operations that I submit the following history of the case, with the

operative procedures employed to obtain the successful result.

The case was one of procidentia uteri, with hypertrophic elongation of the supra-vaginal portion of the cervix, transverse hypertrophy of the infra vaginal portion of the cervix, and entire absence of the perineum, back to the rectum.

The drawing before you represents the uterus as it was when I first saw her, projecting without the vulva 3¼ inches, and pulling along with it in its descent the bladder and rectum.

After 12 months of the hardest kind of work in a large hospital since the last operation, such as scrubbing, washing, running up and down stairs, for five stories, lifting and exerting herself in every possible way, you have an ocular demonstration of the entire success in this case. The patient describes herself as being entirely well, and feeling not in the slightest degree uncomfortable about the pelvic regions.

The following is her history:

C—— S——, æt. 19 years and 9 months. Delicate frame and frail appearance. Was married at the age of 14. Had then never menstruated. Menstruated for the first time at the age of 16 years and two months—two years and two months after marriage. She menstruated but once and then conceived. Her child was born when she was seventeen years old; was large and fully developed. Had a tedious labor, but got through it well and without instrumental aid. Had no physician with her.

On the second day after delivery she got out of bed and stood on her feet, and moved about a little, while her bed was being made, and she continued to do this every day till the ninth day, when she got up for good, and commenced her regular work—washing, scrubbing, and general housework, which she continued daily, till she was forced

to take her bed from the dragging down pains about the pelvis. One thing she mentioned as being engaged in on the 9th day, and that was, cleaning out the back yard by carrying baskets of ice out into the alley. She remained in bed till these pains were quieted, when she resumed her household duties again, and very soon the womb began to protrude from the vulva.

From that time to this she has continued at her work with the womb hanging without the vulva, and without any efforts on her part, or the part of any one, to remedy the displacement.

By the kindness of Prof. E. Lloyd Howard, I was called to see her at the Church Home Infirmary, February 9th, 1869—two years and nine months after her confinement, and nearly the same length of time since the existence of the procidentia. She was employed about the house as a servant till her condition was discovered, for she carefully concealed her infirmity, and thus for about 2 years and 9 months she had been pursuing her laborious occupation, sometimes of a housemaid, sometimes of a laundress, with complete and constant procidentia uteri.

I found the os uteri protruding from the vulva 3¼ inches. The os was patulous, so that the index finger readily passed into the cervical canal. The os was also much ulcerated; it was also hypertrophied, measuring about 1¾ inches in its transverse diameter. The uterus was *retroverted*, as is usually the case in complete procidentia. The supra-vaginal portion of the cervix was elongated. There was no undue hypertrophy of the body. The sound passed five inches from the os uteri into the cavity of the uterus. The intra-vaginal portion of the cervix was only slightly elongated, but was thickened, and its mucous membrane harsh, dry, and semi-scaly.

The uterus, in its descent, had carried along with it the walls of the vagina, and the walls of the vagina had in turn

pulled down the basfond of the bladder, and partially pulled forward the walls of the rectum, so that the uterus, in its displaced position, was completely invaginated by the walls of the vagina, bladder and rectum, and gave to the hand in the act of replacing it the sensation as if there was an opening in the walls of the vagina, through which the uterus passed into the abdominal cavity.

The perineum was absent, having been torn away in her labor, completely up to the anus; and thus, by the absence of the perineum, and the long continued dilating force of the uterus, bladder, rectum and vagina, the vulva and ostium vaginæ had become so capacious that the hand passed into the vagina with the greatest ease. All contractile power of the sphincter was gone.

With this condition of things I unhesitatingly advised an operation, and the patient consented. I touched the ulcers with nitrate of silver, and for several days used glycerine, with a little tannin, to the harsh semi-cuticular mucous membrane of the vagina.

We kept the procidentia as much reduced as possible by keeping her quiet in the recumbent position, with balls of cotton, soaked in the glycerine and tannin, stuffed into the vagina; but these means were very inefficient in retaining the reduction. The uterus would protrude in spite of them. Nevertheless, a few days of such treatment prepared the os uteri and vagina for the operation.

On February 15th, 1869, with the patient on a table, in the semi-prone position, under the influence of chloroform, and assisted by Drs. E. Lloyd Howard, Garretson, Latimer, and others, I proceeded, *first*, to diminish the capacity of the vagina, and *secondly*, to restore the perineum, having primarily returned the uterus to its normal position.

With Sims' speculum in the vagina, a forked Simpson's sound, bent at a sufficient curve, to keep up the prolapsing

anterior wall of the vagina, I proceeded to denude an equilateral triangle on the anterior wall of the vagina; the apex of the triangle being at the meatus urinarius, and the base just in front of the os uteri. The width of mucous membrane denuded was from ¼ to ⅓ of an inch at either side, as well as at the base of the triangle.

I brought these denuded surfaces together with silver wire, in seven interrupted sutures, except the last, or one next to the os uteri; and this was a running or pleating suture, gathering up the denuded base of the triangle.

I then proceeded to denude the posterior commissure of the vulva and either lip of the labia, for about one inch and a half, and extending upon the mucous membrane of the vagina about ¾ of an inch. These denuded surfaces I brought together, first, by two deep quilled sutures of strong saddler's silk, waxed; and secondly, by three interrupted sutures of strong iron wire.

The patient was then lifted into bed, and a Sims' self-retaining catheter introduced into the bladder, with gutta percha tubing attached, to conduct the urine into a vessel. This was done because there was no one residing in the house to draw off the urine from time to time. I was unwilling that she should pass it voluntarily for a few days, or run the risk of allowing her bladder to become distended. Usually it is only sufficient to draw the water off about twice daily.

No dressings were applied. Twenty-five drops of deodorized tincture of opium were ordered every four hours, with the view of constipating the bowels. A milk, soup, and very little solid, diet was ordered.

Feb. 16th, second day. Patient has suffered much with nausea, and vomited up everything in her stomach. Dr. Howard suggested a drop of creasote and a half grain of solid opium, which was given every four hours in the form of a pill. Milk and lime water as a diet.

Feb. 17th, third day—The first pill of creasote and opium stopped the nausea. Patient cheerful and comfortable.

Feb. 19th, Friday, four days after the operation—Removed the quill sutures. No unpleasant symptom; no fever; sleeps well; appetite good.

Feb. 22d, Monday, eighth day after operation—The self-retaining catheter was discontinued; desired to pass the urine per viam naturalem. To this date it has been removed daily and cleansed. Opium pill and creasote continued ter die. No action on bowels since operation.

Feb. 28th, fourteenth day—Has not evacuated the bowels since the operation; has experienced no inconvenience from the constipation; has been fed principally on liquids; to-day took by order, one ounce of castor oil and ten drops of laudanum, with a rectal enema of a pint of warm water and two ounces of castor oil. Bowels were freely moved, but with a good deal of pain from the indurated fœces. Opium discontinued two days ago.

March 1st—Gave the patient chloroform in order to keep her quiet and relax the perineum, while I proceeded to removed the stitches; found the perineum thoroughly united as far as it had been closed. The stitches in the anterior wall of the vagina had held, and the vagina was much contracted; but it is doubtful whether I took in a large enough triangle from the anterior vaginal wall. The superfluous tissue is still great. All the sutures were removed to-day, except the two quilled sutures, which were removed on the fourth day.

March 16th—She was allowed to get up to-day, it having been four weeks yesterday since the operation was performed; was kept in the recumbent position, to allow condensation of the cicatrices.

April 3d—Examined the girl to-day. She has been up attending to her house duties ever since last note, sweep-

ing, running up and down stairs, &c., &c. The uterus has not yet protruded through the vulva, but the anterior wall of the vagina falls down and drags along with it the base of the bladder, as a cystocele at the orifice of the vagina; and no doubt in time, from the life she is compelled to lead, (on her feet,) it would protrude from the vulva, and bring the uterus along with it. The uterus has contracted a good deal. The sound now passes about four inches into the cavity of the uterus, instead of five inches, as at the time of the operation.

April 29th, 1869—I examined C—— S—— to-day, two and a half months since the operation. I find the anterior wall of the vagina bulging between the vulva, and when she exerts herself greatly on her feet it protrudes even more. The uterus has not protruded since the operation, although it no doubt will in time, for although the ruptured perineum has been restored to its normal extent, all contractility of the sphincter vaginæ has been so entirely destroyed by long-continued distension, as to offer no resistance to the slightest pressure from above. The hypertrophy of elongation has been much diminished; the thickened condition of the cervix also diminished; no ulcers about the os.

May 4th, 1869—To-day I proceeded to a second operation on C—— S——, for the purpose of still further reducing the capacity of the vagina, diminishing the size and weight of the uterus, and closing further the perineum. Long-continued pressure of the sphincter vaginæ, long-continued absence of its lower attachment in the perineum, have rendered it powerless for closing the vagina, and although by the last operation the perineum was restored to its normal extent, still, by putting the patient on her back and separating the legs very slightly, we could look directly up into the vagina.

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sufficient to prevent the procidentia.

October 13th, 1869—I operated on C—— again to-day for the cystocele which presented at the ostium vaginæ. The uterus has not come down since the last operation, though she has been so occupied either at the wash tub or in carrying a heavy child in her arms the greater part of her time, as to test the uterine forces to their utmost capacity. Nevertheless, a tumor in the form of a cystocele presents at the mouth of the vagina, and although the perineum has been closed by two previous operations, to nearly double its natural extent, yet all power in the sphincter vaginæ is so completely lost, that very little resistance is opposed to the prolapsing bladder, even though the entrance to the vagina has been so greatly contracted by the last two perineal operations.

From her necessarily laborious occupation on the feet, I feel sure that if this cystocele is allowed to remain, it will act as an entering wedge to the vulva, and in time so force back the restored perineum and pull down the uterus, as to reproduce the procidentia uteri.

On October 13th I denuded another equilateral triangle on the anterior wall of the vagina, and brought the denuded surfaces together with seven silver wires. I also closed the perineum an inch further, with deep iron wire sutures, without the quill sutures, thus leaving a very small outlet to the vagina. The case was treated as before. The perineal stitches were removed October 21st, with the additional perineal union complete. The vaginal stitches were removed October 30th. All held firmly except two, the first and third from the meatus urinarius. The second held and formed a strong band of support for the base of the bladder, near the vaginal outlet. The upper stitches held and sufficiently contracted the vaginal capacity to guard against future cystocele or procidentia uteri.

The case, Mr. President, is before the society for in-

spection. It is now over five months since the last operation, and the patient has been doing the most laborious work in a large hospital. She says she is perfectly well, and feels not the slightest inconvenience or discomfort about the pelvic organs.*

This case presents several points of much interest:

1st. In the production of this procidentia, were brought to bear all the causes which usually produce this displacement; and hence the procidentia was brought about rapidly, completely and extensively. It occurred within a short time after delivery, when the uterus was subinvoluted and trebly heavy; when all the uterine supports were powerless, from their recently overdistended and relaxed state; and when pressure from above was brought to bear upon the uterus, by fixation of the diaphragm and contraction of the abdominal muscles, in the act of lifting buckets, tubs and baskets of ice.

Either one of these causes is sufficient in itself, when long continued, to produce procidentia uteri.

Tumors (uterine, ovarian, or abdominal) may force or drag down the uterus, even when it is normal in size, and its supports all intact; but in this case, the displacement usually stops short of complete procidentia, and terminates in prolapsus.

A subinvoluted or chronically hypertrophied womb, is also sufficient in itself, by long dragging upon healthy uterine supports, to produce procidentia; but in this case, as in the previous one, the displacement is not apt to go beyond prolapsus; and it is when added to those causes (one or both), there is a loss of power in the urine supports, that procidentia uteri is sure to follow on the patient's assuming the erect position. It is even apt to follow, when there is

* Twelve months have now elapsed since the last operation. This patient continues perfectly well, and is employed in the most laborious work in a large hospital; is compelled to lift tubs and run up and down stairs a great deal.

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As the backwoods doctor with fits, he felt that if he only had a large fistula on the anterior wall of the vagina, he could close it without difficulty, and thus so contract the capacity of the vagina as to cure the procidentia. He determined to make such a fistula. Hooking up the anterior wall of the vagina with a tenaculum—pulling it downward, and grasping the superfluous tissues with the limbs of a pair of curved forceps, he cut behind the forceps, expecting to make a large opening into the base of the bladder; and though he made an immense chasm (2½ inches by 2⅝), he did not touch the bladder at all, but brought the edges of this chasm together with metallic sutures, and thus cured the procidentia without the fistula.

A fourth point of interest in the above case is, that quilled sutures are worse than useless in perineorrhaphy. They do no good, and produce a great amount of suppuration. The deep metallic sutures are all sufficient.

A fifth point is, that in a case of procidentia, where the perineum has been absent for some time, and the power of the sphincter vaginæ is almost entirely gone, there is a necessity in restoring the perineum to close it quite up to the virgin point, in order to compensate for the powerless sphincter. No one need be deterred from such an operation by the fear of trouble in any future parturition. The perineum, when so closed, will yield with almost the same facility as if no such operation had been performed, and with much more facility than in the primiparous state.

MEDICAL SOCIETIES.

BALTIMORE PATHOLOGICAL SOCIETY.

NOVEMBER 4, 1870.

[Reported by Eugene F. Cordell, M. D., Secretary.]

Dr. H. P. C. Wilson exhibited an ovarian cyst, removed four days ago. The patient 39 years old, the mother of six children. The abdominal incision was 2½ inches. The sac and fluid weighed 42 pounds. A peculiarity in the case was, that the swelling first appeared on the *median line*. The patient, up to the present, doing well.

Dr. F. Garretson alluded to a case in which hydrate chloral had produced great temporary impairment of sight, and asked if such disturbance was common after its administration.

Dr. Russell Murdoch replied that it is stated in the Ophthalmological journals to cause anæmia of the retina, and suggested that it might prove useful in treating congestion of its vessels, for which artificial leeching is now the remedy.

Dr. W. G. Harrison introduced the subject of *asthma*, with some remarks upon its pathology, believing that it depends either upon spasm of the bronchial tubes or of the pulmonary artery. He related a case in which the application of Chapman's ice bag to the spine had produced very speedy and decided effects.

Dr. G. D. Beatty said that nothing new had been introduced in the treatment of asthma for the past twenty years

that promises to aid us. In the spasmodic attacks he finds most benefit from chloroform inhalations, or hypodermic insertions of morphia. He recommended for the more chronic cases a mixture of syr. ferri iodid. and Hoffman's anodyne.

Prof. Chew remarked that Dr. Metcalfe had found relief in his own case from 15 gr. doses of hydrate chloral.

Dr. Arnold stated that he had tried the hydrate chloral in several cases without the slightest benefit.

Dr. H. P. C. Wilson thought that we are too apt to confine our attention to and treat the *one symptom* of spasm without making proper effort at a thorough diagnosis. He believed asthma, in many cases, to be the reflex action from a morbid condition of distant organs, instancing a case in which hysterical asthma was promptly relieved by the cure of ulceration at the os uteri.

Dr. Arnold called attention to the hereditary nature of the affection, classing it with the neuroses, and giving cases in which epilepsy, insanity, etc., are found running in certain families, and evidencing a close relationship.

Nov. 18th.—Dr. Thos. R. Brown reported two cases, illustrating the value of small doses of ipecacuanha in the treatment of dysentery. Although the disease with us is usually self limited, yet, in the intense heat of summer, cases sometimes occur, as in the tropics, characterized by profuse hemorrhage. This form only occurs when malaria is prevalent. Post mortem examination reveals extensive transverse ulcerations nearly perforating the bowel, involving only the large intestine.

First case.—A lady aged 50, of robust health, was attacked with dysentery last summer. The usual modes of treatment were employed, but without success. Finally, one drop of the wine of ipecac. was given each hour. Before a dozen doses were taken the patient was relieved.

Second case.—A lady aged 70, of feeble health, had, last July, several quickly succeeding passages, consisting of much blood and mucus. When first seen she was just recovering from a chill. Quinine was given, but caused vomiting. Two drops of wine of ipecac. were ordered every hour. Immediate improvement was manifest, and in two days the patient was recovered.

The full effects of medicines may be produced by minute doses, often repeated, before as much as would make the usual dose has been taken.

Dr. Garretson, from an experience of several years in the tropics, could confirm the views of Dr. Brown. Ipecac. in gr. ss. doses every hour or two, he found the most effective remedy in these severe cases of dysentery.

Dr. W. C. Kloman reported a case of asthma relieved by gr. xv. doses of hydrate chloral.

Dr. Garretson reported the case of Col. Washington, subject to attacks of asthma lasting four or five days, who was relieved in two days by bromide of potassium and belladonna.

Dr. H. P. C. Wilson read a very interesting case of removal of

INTRA-UTERINE PEDUNCULATED FIBROID TUMOR.

The patient, aged 43, has had six children, the last now twelve years of age. Health has been bad since last labor, and she has suffered from irregular menstruation, constant metrorrhagia, often quite profuse, and abdominal pains. The abdomen has been gradually enlarging. When first seen, October 7th, she had regular bearing-down pains, like those of labor. On examination, the finger encountered a mass within the vulva, in every respect resembling a child's head. Further manipulation, and the history of the case, led to the diagnosis of intra-uterine fibroid tumor. The tumor filled the pelvis, preventing both urination and

defecation, and reached as high as the umbilicus, giving the abdomen the appearance presented at the eighth month of pregnancy. Ergot having been given, the operation proceeded as follows: The patient being anæsthetized by chloroform, an attempt was made to introduce the hand upwards by the side of the tumor to discover the point of attachment. The tumor was so tightly impacted that the hand could be got to the superior strait only with the greatest difficulty. A strong thread was now attached by one end to the free extremity of the chain of the ecraseur, and by the other to a Gooch's canula, and an attempt was made to sweep it over the tumor, and thus encircle it with the chain. The closeness of the parts totally frustrated the manœuvre. The chain being now adjusted to the ecraseur, the operator began to push it up over the tumor by means of sponges held in sponge-holders. When this was accomplished to the extent which the sponge-holders would allow, the chain was tightened. Scarcely four turns were made when the chain snapped. A smaller ecraseur was now provided, with strong piano wire, and this passed up around the mass. The working of the ecraseur caused the wire to snap. A second and a third time the wire was adjusted, but with like result. Fortunately, the break occurred near the point of attachment, which allowed of its readjustment without the renewal of the wire. It was now 7 P. M.; the patient had been under the influence of chloroform 6½ hours, and both operator and patient were exhausted. So the wire was again tightened, and the patient thus left for the night. With the aid of an anodyne she slept well, and the next morning the operation was resumed. A number of ecraseurs had been collected, but none had a chain long enough to encircle the tumor. The ecraseur, which, with the constricting wire, had been left in the pelvis since the preceding evening, was put to work; but again, for the

fourth time, the wire broke. It was now determined to dissect out the mass through the vagina. The ecraseur and wire were once more attached so as to constrict the tumor, without running risk of breaking the wire, and Sim's speculum was introduced. The operator, with a pair of straight scissors, then cut directly into the centre of the tumor, and with curved scissors removed piece by piece until the cavity of the pelvis was entirely cleared and the constricting wire reached above the brim of the pelvis. Sixteen ounces were thus removed. The hemorrhage did not exceed one ounce. The patient had now been under the influence of chloroform 3½ hours. Proper instruments were not at hand for the completion of the work. A pledget of lint, soaked in a solution of carbolic acid, was laid against the face of the tumor which remained. The bladder and rectum, relieved of pressure, resumed their functions. The next day the cotton was removed, some loose portions of the tumor were cut away, and the vagina washed out with tepid water. The lint, soaked in carbolic acid, as before, was replaced and the patient left.*

The next day, Oct. 11th, the patient was so exhausted and requested so earnestly that the operation should not be resumed till the following day that her request was granted. Oct. 12th, the patient was anæsthetized in the dorsal position. The ecraseur being tightened the wire came away without much resistance, with a small portion of the tumor. The hand was placed up to the fundus uteri where a short, thick pedicle was discovered. The ecraseur with the iron twisted wire attached was now passed along the palm of the hand to the fundus uteri. The wire was passed over the tumor and around the pedicle by aid of the fingers.

* Whilst waiting for the arrival from New York of Chassaignac's Ecraseur with Sim's Porte Chain, some experiments were made to test the strength and suitability of different kinds of wire. It was found that a rope of four small strands of iron wire twisted, possessed superior advantages.

The screw of the ecraseur was turned and the pedicle cut through. The detached mass was removed with forceps, and was found to weigh fifteen ounces. There was no hemorrhage. The whole amount of blood lost from beginning to end, did not exceed one ounce. Allowing for blood and fragments lost, estimated at five ounces, the weight of the tumor was 2¼lbs. The patient was under chloroform 2 hours on the last day. Nearly a pint of chloroform was used in all. The after treatment consisted in the use of injections of tepid water and a weak solution of carbolic acid. The patient is now well, and no unpleasant symptoms have marked her recovery.

Dr. Erich stated that he had found fine annealed iron wire the best for use with the ecraseur.

Dr. O. I. Coskery exhibited a specimen of cancer of the pylorus from a man aged 59. The subject was very fat, and of intemperate habits; both parents consumptive. The disease first manifested itself four months ago. The symptoms were gnawing pain at the ensiform appendix, and persistent vomiting coming on one hour after meals. No tumor could be detected by palpation. After death there was found an inch of fat in the abdominal wall which had obscured the presence of the tumor beneath. The stomach was immensely distended; its length 14 inches.

Dr. Coskery also exhibited two splints for the arm; the first somewhat on the principle of Smith's anterior splint. The second was for extension of the arm in cases of fracture, consisting of a grooved support for the forearm, with a strong iron wire attached and extending along the arm and overhanging the shoulder. The forearm being confined to the grooved support, the overhanging wire was drawn down to the shoulder by adhesive straps passing over and attached to the chest, before and behind. By this means the lower fragment was depressed, while the seat of injury could be readily inspected without removal of the apparatus.

SELECTED ARTICLES.

ANTIPHLOGISTIC ACTION OF ERGOT.

At a late meeting of the New York Medical Journal Association, Dr. A. Jacobi, Clinical Professor of Diseases of Children, College of Physicians and Surgeons, N Y., made the following remarks concerning the action of Ergot in the antiphlogistic treatment in diseases of children.

"The remedy that will first claim our attention to-night is ergot. If there be any doubt that quinine acts through the nervous system —and there are some who think it acts simply through a change worked in the blood—there can be no such doubt concerning ergot. Partly from the physiological experiments of Brown-Sèquard, and partly from clinical observation, it must now be considered a fixed fact that ergot acts through the nervous system, and especially through the sympathetic, upon the unstriped muscular tissue under its control. Thus it is that ergot produces its peculiar effect upon the muscular tissue of the uterus, the unstriped fibres of the bladder, the muscular layers of the intestines, and especially upon the muscular coat of the blood-vessels. Its power in diminishing the size of the blood-vessels is manifest from its value as a hæmostatic; and it is of this power we have to speak in considering its antiphlogistic effect.

"This effect is noticeable in fevers generally, and particularly in fevers of the intermittent type. It is an established fact, in my opinion, that many cases of obstinate intermittent fever will, when no longer benefited by quinine or arsenic, still be benefited by the action of ergot. My first experience with the drug as an antifebrile was in cases of this nature—in very obstinate intermittents which yielded to this after other remedies had been proved powerless. From that time—about a dozen years ago—I have given it not only in intermittent fevers, but in a number of other affections, chiefly the following:

"In many cases, not uncommon in women and children, of spinal meningitis—resulting in pain in the spine, slight fever, occasional convulsions, partial or total paralysis—I have given a mild preparation of ergot, and have uniformly found a beneficial effect.

"I have given ergot in the first stage of the so-called infantile paralysis, or, as I incline to call it in most cases, the spinal paralysis of children. For I take it that the great majority of instances of "infantile," or "dental" paralysis are dependent upon congestion of the spinal cord, that is, dilatation of the blood-vessels, and usually with hemorrhage taking place to a small extent inside the vertebral canal. It usually happens that such children are paralyzed in one lower extremity, or in both; now and then also in an upper extremity; sometimes without premonitory symptoms, sometimes with prodromic fever, severe or slight, etc. These symptoms are, to my mind, best explained, in most cases, by supposing an extravasation with the attendant dilatation of blood-vessels. The common observation is, that such cases often begin to improve immediately after the affection has set in; improve very rapidly for four, five, or six days; improve slowly for five or six weeks more; and then the process stops, no benefit derived from any treatment, except, perhaps, from the electrical. As, in my view, the pathology includes dilatation of the blood-vessels in the neighborhood of the seat of hemorrhage, not only producing the effects of congestion, but also incurring the liability to further extravasation, I give ergot to contract the vessels, and I have uniformly seen that in such cases as came under this treatment, even so late as the second or third week, the improvement was much more rapid than in those where nothing was done. But many of the cases we do not see at all until it is too late to do anything.

"In several cases of chorea minor, or St. Vitus' dance, I have used ergot with great benefit—not in the form dependent on rheumatic affections and found in the course of slight articular rheumatism, but in that form which goes hand in hand with pain in some portion of the spinal column, and can be traced back to spinal meningitis.

"Now and then we have neuralgic affections depending upon spinal meningitis, which will be helped by ergot, if given early—at the same time slight purgatives, etc., are not omitted—all those

cases of pain in the back, with, perhaps, slight intercostal neuralgia, perhaps slight herpes zoster, which are not improved by the usual treatment, but require something to act upon the blood-vessels.

"I have tried ergot also in some cases of brain disease, but cannot say that I have been so successful there; at all events, I cannot lay my finger upon such a number of successes as I am confident that I have gained from this remedy in diseases of the spinal canal. In diseases of other organs I have had very little experience with it, and so am not prepared to recommend it so highly as I have in the cases mentioned.

"The only preparation of ergot which I have used to any great extent are the *ergotine*, so called, of Bonjean—a French preparation in solid-extract form, which makes a good pill mass—and the fluid extract prepared by Dr. Squibb. I have been so well satisfied with these two preparations that of late I have used no other; though before Squibb's fluid extract came into market I employed a decoction in water, with the addition of a little sulphuric acid. The doses should be given much larger than those prescribed in the books. I have seldom seen much effect from the usual doses, but I seldom miss the desired effect from the larger ones. In a case of spinal meningitis in a child two or three years of age, I would give *at least* two drachms of Squibb's fluid extract in the day, or from four to seven grains of Bonjean's ergotine. Where its use is to be long continued, for chronic hemorrhages, etc., I give commonly about a scruple of the ergotine daily to an adult, and to a child in proportion to age, though, as I have before stated, I think that of febrifuges the proportionate dose for children is much larger than given in the books. None of the symptoms of so-called ergotism, whether of the spasmodic or of the gangrenous form, have I seen. I do not believe that ergotism, as it has been described by the older writers, will be found in our country and among a population like ours. The symptoms of spasm, and especially of gangrene so fearful and fatal, were observed in a population starved for years, in countries where the only food was rye; and when the rye was chiefly ergot, the people had nothing to supply their want. Under such conditions gangrenous ergotism is possible. But here, in a population living on milk, meat, etc., it is impossible as a result of the employment of ergot as a remedy. I have seen no untoward

effects from its use; and there is no remedy that I rely upon with such confidence in the affections I have pointed out as upon this."

[*Medical Record.*

ON THE RADICAL CURE OF HYDROCELE BY THE SETON.

BY HENRY SMITH, F.R.C.S.,
Assistant Surgeon to King's College Hospital.

THOSE who favor me with the perusal of these few observations will, I doubt not, feel inclined to accuse me of retrograding just one hundred years, more especially those who are familiar with the writings of Percival Pott; for they will know that, in the year 1771, that illustrious surgeon wrote a treatise on the "Method of Obtaining a Perfect or Radical Cure of the Hydrocele or Watery Rupture by means of a Seton." They will know, moreover, that, notwithstanding the advocacy of this plan of treatment by Pott and others, it had fallen into disuse and almost into oblivion, and has been succeeded by methods which are looked upon as more simple and efficacious.

Taught, as I have been, to consider the radical cure of a hydrocele by the injection of iodine as the best that could possibly be adopted, I have been content with this plan of treatment, in which I had never met with a single failure, until, about eighteen months ago, it occurred to me that a modification of the plan recommended by Pott might be employed with especial advantage in those instances of hydrocele which occur in the out-patient department of an hospital, for the disease might be cured without subjecting the patient to confinement in the hospital, and, indeed, without removing him from his ordinary occupation. Since this period I have adopted this treatment in every instance which has presented itself, and when a radical cure has been desired; and, although I have not notes of the cases, I doubt not that, in round numbers, I must have treated at least thirty cases by the seton, and with excellent results. Only in two instances has it been necessary to admit the patient into the hospital after the introduction of the seton; in

the one case violent inflammation suddenly came on without adequate reason, whilst in the other a similar state of things resulted from the patient walking all the way from the hospital to Whitechapel immediately after the introduction of the thread—of course, this occurred without my sanction. In only one instance have I been obliged to repeat the operation in consequence of insufficient amount of inflammation. In the greater number of cases there has been but slight constitutional disturbance; in some of the cases, however, it has been considerable, but I may state here that some of these patients have been men much advanced in life, and subjected to depressing and unhealthy influences.

Pott's operation consisted, as is well known, in the introduction of a seton, "consisting of ten or twelve strings of candle-wick cotton;" the fluid in the vaginal sac having been previously drawn off by a trocar and canula. He put his patient to bed and bled and purged him, and adopted other measures during the time the necessary processes for the cure were going on. Excellent as this was there is no doubt that it was unnecessarily severe; and the method I adopt is simply to puncture the tumor with a common suture needle, armed with a single thread, and having brought the thread out a distance of one or two inches from the point of entrance, it is disengaged from the needle, and the two ends are lightly tied together. I do not tap the hydrocele first, as Pott recommended, for if a pretty good-sized needle be used the fluid readily drains away. The patient may, and generally does, go to his ordinary occupation, and at his visit in forty-eight hours I generally find the part considerably swollen; but if that be not the case, inflammatory action may be excited by moving the threads, and desiring the patient to do so from time to time. In some cases the thread may be taken out in four or five days; in the majority of instances a week or ten days should elapse before it be removed. As I stated before, in only one instance has there been sufficient want of inflammatory action to bring about a cure, and here a second introduction of the seton succeeded.

I have already stated that I adopt this modified form of seton for the radical cure of hydrocle mainly because the patient is not compelled to withdraw from his ordinary occupation. I do not

mean to assert that he should undertake any very laborious work during the first few days, when the inflammatory action is generally most severe, and I would not sanction a man taking a walk of several miles after the thread has been introduced. A certain amount of caution must be exercised, and the treatment must be watched every two days, so that if too much action is being produced by the seton, the thread may be at once removed.

It is right for me to state here that Sir William Ferguson describes, at page 667 of his new edition of Practical Surgery, a method very similar to that I adopt, and says he has found it answer very well, although I doubt not, from his subsequent remarks, and from what I have witnessed of his practice, he gives the preference to the treatment by the injection of iodine. The seton, however, for the reasons I mention, is particularly adapted for cases occurring in the out-patient department of our hospitals.

[*Medical Times and Gazette.*

GERMS.

ONE is getting tired of the endless discussion to which *germs* have given rise; yet the paper by Dr. Richardson, an account of which was partly given in our columns last week, and continued to-day, may very conveniently be taken as a stand-point whence we may view the two theories of disease, the chemical or physical and the vital.

On the one side we have the doctrine that disease originates from germs, the type of which we may take to be the sporules of fungi, such as are described by Pasteur in his researches on the Pebrine disease of silkworms; that those bodies, introduced by some means or other into the system, begin to grow, their growth and multiplication—at the expense, say, of the blood—implying, of course, certain changes in that tissue, producing as their indications the symptoms of the disease. On this theory, it is plain that it is the vitality of the germs merely—their powers of growth and reproduction only—which are at the root of the mischief. Did they not grow, the blood and tissue changes would not be effected.

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uite clear that the germ theory as ordinarily understood neither of the introduction of new diseases nor the extinc- of old ones; yet both are matters of history. It is tolerably ain that typhus may arise from the hardships of war, from filth d over-crowding; yet these are no germs. Typhoid fever is generally—we do not say invariably—associated with bad drainage and impure water supply, but it is not at all clear that typhoid stools are necessary to render the water poisonous. In short, using the word germ in the sense we have done, as meaning something as definite as a bit of transplanted cuticle, we can understand a germ theory of disease; but the germs that are untangible, continually receding as they are approached, about which we know

On the other hand, we have the doctrine that altered secretions have the power of giving rise to diseases—say the altered secretion of skin the power of producing scarlatina, or that of the alimentary canal giving rise to cholera. Here there is nothing foreign introduced into the body, certainly nothing owing its influence to vitality merely.

The upholders of the germ theory claim for these germs extraordinary powers of resisting destruction by cold or by heat; but that the presence of certain substances, notably phenic acid, is fatal to their existence. Furthermore, they are driven to the phenomena of fermentation and putrefaction for illustrations of this theory of disease, some of them not scrupling to call ordinary suppuration the putrefaction of a wound. Now, it may be well to inquire how far we can go in actual knowledge, without the aid of speculation, as to the fashion in which certain diseases originate. It is perhaps best to take vaccinia, that subject having been best worked out. From the researches of Chanveau, confirmed by those of Dr. Burdon Sanderson, we know that the venom, so to speak, is not fluid, but solid; not dissolved in the fluid, but suspended in it. This is shown by the fact that vaccine lymph diluted in water or serum does not become less active, but only less certain; where it does take, the symptoms are as severe as usual. In vaccine lymph there are two kinds of solid bodies: leucocytes—*i. e.*, bodies corresponding to the white blood corpuscles—and others infinitely smaller and less distinct. The poison is, further, not of a crystalline character, but colloidal, for it will not diffuse; probably, therefore, it is of an albuminoid character. Now the question comes to be, to what do these exceedingly minute solid particles of colloidal matter owe their power? Is it to their power of growth and reproduction—that is, life-force—merely, or to some other kind of influence? We know that a yeast plant or a vinegar plant introduced into a saccharine fluid grows at its expense until the sugar is exhausted, alcohol and vinegar being the accidents, the result more yeast and more vinegar plant. In disease, certain unknown germs (one is tempted to ask, germs of what—what do they come to?) are supposed to be introduced into the system, to multiply amazingly, and yet to remain unseen—to be but germs.

There seems to be no life-history appertaining to them—nothing, in short, save their disease-producing powers.

But there is another form of the theory which one can understand. Let, during an attack of scarlatina, an exeedingly small portion of protoplasm be detached from the throat of the patient whilst the physician is examining it, conveyed by the agency of the breath to the physician's own throat, there taking root, as we see a portion of transplanted cuticle does, affecting the neighboring parts with its malign influence—as muscle forms muscle and bone forms bone—scarlatina follows in its train. But this is something different from an accidental result of mere vitality; something other than the alcohol which accompanies the growth of the yeast plant. When one is bitten by a mad dog, and hydrophobia ensues, we can understand that it results from some poisonous material introduced by the bite of the animal, yet we are not aware that there is any apparent difference in his saliva. The disease apparently originates spontaneously in the dog. Has it ever done so in man? Dogs can communicate the disease to one another, and also to man, but man cannot to any other animal. Were there certain germs appertaining to the disease, and alone capable of producing it, these facts would be difficult of explanation: all, however may be accounted for by the supposition that the more minute salivary corpuscles have undergone some important change, producing the disease in the animal itself, and in others into whose body they are introduced.

It is quite clear that the germ theory as ordinarily understood allows neither of the introduction of new diseases nor the extinction of old ones; yet both are matters of history. It is tolerably certain that typhus may arise from the hardships of war, from filth and over-crowding; yet these are no germs. Typhoid fever is generally—we do not say invariably—associated with bad drainage and impure water supply, but it is not at all clear that typhoid stools are necessary to render the water poisonous. In short, using the word germ in the sense we have done, as meaning something as definite as a bit of transplanted cuticle, we can understand a germ theory of disease; but the germs that are untangible, continually receding as they are approached, about which we know

nothing, had better, we think, remain unknown.—*London Medical Times and Gazette.*

ATROPHY OF THE NERVE-CELLS OF THE MEDULLA AND THE PONS.

MM. DUCHENNE (of Boulogne) and Joffroy (*Archiv. de Phys.*, No. 4, 1870,) give a résumé of the pathological anatomy of the nerve-cells that is of more than usual interest. Three diseases, progressive muscular atrophy, labio-glossolaryngeal paralysis, and atrophic infantile paralysis, formerly believed to be muscular, are now proven to be due to one and the same anatomical lesion,—alteration in the nerve-cells, producing their atrophy with a tendency to their utter destruction.

Clinically, these cases can be divided into two classes:—1. where the atrophy of the cells is acute, *e.g.* atrophic infantile paralysis; 2, where it is chronic, *e.g.* progressive muscular paralysis of the adult. In the first, paralysis attacks suddenly or very rapidly a number of muscles, of which, in time, some recover their functions; but in the second, the symptoms, slight at first, become gradually worse, are often stationary for a time, it is true, but do not disappear, and never even retrograde. The second form is often hereditary, the first is not; the second is most frequent in adults, the first in children.

But each of these two forms of disease can be further subdivided, according to the age at which it appears. Acute atrophy of the nerve-cells has (*a*) a common form seen in infants,—atrophic adult paralysis; (*b*), a much rarer form, seen in adults,—atrophic adult paralysis (see the third edition of Duchenne's "Electrisaton Localisèe"). Chronic atrophy of the nerve-cells reverses the rule, being very common in the adult, but much more rarely seen in childhood, where it appears only as a hereditary taint. But in this chronic atrophy it is not sufficient to distinguish only the time at which the disease appears, but also the cases in which alteration attcks the cells of the medulla and pons universally, and

those in which it is localized in a particular region. Accordingly, we distinguish the following forms:

(*a*) The medulla is the first point invaded, when the muscles of the trunk and extremities will be affected; but these troubles, not being fatal, will permit the lesion to extend frequently first to the nuclei of the hypoglossal and facial, and then to those of the spinal accessory and pneumogastric. When the disease attacks the two last-named nuclei, the disease is rapidly fatal from respiratory and circulatory troubles.

(*b*) Not rarely the disease begins in the floor of the fourth ventricle, in the hypoglossal and facial nuclei, the muscular troubles being then in the tongue and lips, and extends, as before, to the spinal accessory and pneumogastric.

(*c*) In this form the atrophy of the nerve-cells develops itself everywhere at once, but death is produced as before.

Progressive muscular paralysis corresponds generally to the form (*a*); glosso-labio-laryngeal paralysis, to the form (*b*); and Charcot's case (*Archiv.*, No. 3, 1870,) to the form (*c*).

In the form (*a*) the disease generally begins in the cervical enlargement of the cord, and the first symptom is atrophy of the muscles of the thenar eminence, followed by atrophy of other muscles. The muscles waste away, but are never paralyzed.

In the form (*b*) where the hypoglossal is first affected, the muscles of the tongue are paralyzed without any wasting, and after all voluntary movement is abolished, galvanization will still act on the muscles. This suggests the idea that there may be motor cells and trophic cells, whose separate destruction may cause these various forms. A detailed case of glosso-labio-laryngeal paralysis, with autopsy and careful microscopic examination follows.—*The Medical Times.*

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

A PRACTICAL TREATISE ON DISEASES OF WOMEN. T. Galliard Thomas, Professor of Obstetrics and the Diseases of Women and Children in the College of Physicians and Surgeons, New York, etc., etc., etc., with two hundred and twenty-five illustrations. Second Edition Revised and Improved. Philadelphia: Henry C. Lea. 1869.

No work on Diseases of Women by an American author has met with so distinguished a success, or has so well merited the favor it has received, and in few books is there less occasion for apology in the preparation of the second edition than in this, yet it is but just to the author that it should be undertood, that only six months had elapsed after the issue of the first edition, before a second was called for. The "author has sought by a careful revision of the whole, and by the addition of a chapter on Chlorosis, to render his work more worthy of the favor with which it has been received."

When it is remembered how rapidly the study of gynæcology has advanced, how few books there are upon the subject, and how almost its entire literature is only to be found scattered about in pamphlets and journals, it will at once be seen how peculiarly valuable and appropriate a compendious statement of the subject is, particularly from one whose large experience and well-known ability so thoroughly qualify him for the task. This work is so well known that any extended review is uncalled for, and we shall therefore content ourselves with a few remarks on Chlorosis, which forms the subject of the additional chapter.

This disease, according to Dr. Thomas, consists essentially in a "neurosis of the ganglionic system of nerves. Disordering the control which this system exerts over the functions of the organic life;" taking issue in this view with those writers who consider it a blood disease, and have consequently described it under the various titles of "anæmia," "spanæmia," "chloro-anæmia." We think there can be but little doubt of the correctness of this

view, and that Dr. Thomas is quite right to refer the morbid condition of the blood so frequently found associated with it to the class of secondary conditions. That a diminution in the number of red corpuscles, and "in time of all the solid constituents of the blood," is a very common pathological condition, is admitted, but at the same time, it is justly claimed that the chlorotic condition may exist in a person who presents no appearance of anæmia, and our author quotes from Dr. Flint, to show to what extent this must be admitted by those who entertain—as Dr. Flint does—the blood theory of the disease—"anæmia is apt to occur in females at or near the age of puberty, when there has been no loss of blood, no deficiency in alimentary supplies, and no unusual expenditure of blood plasma. Under these circumstances it constitutes the affection to which the name chlorosis was applied before the anæmic condition was fully understood." Adopting then the view of the French pathologist, that chlorosis is a disease of the sympathetic system of nerves in which anæmia may or may not exist, Dr. Thomas illustrates the strength of his position by the following contrasted statement, in which the difference between these conditions is clearly shown:

ANÆMIA	CHLOROSIS
Is merely an impoverishment of the blood from want of nourishment, from some drain upon the system, or from some poison in the blood.	Is a disease of the nervous system, and may occur or not without the production of its most common symptom, anæmia.
Can usually be accounted for by the discovery of some special cause.	Cannot usually be accounted for by the discovery of special cause.
Occurs at all periods of life, to men, women and children.	Occurs in true type only to girls about time of puberty.
Is readily curable by removal of cause, good diet and administration of iron.	Is affected favorably only by remedies that act upon the nervous system, as alteratives and tonics.
Is always characterized by impoverishment of blood.	Sometimes exists without impoverishment of the blood.
Produces a puffy and pale appearance.	Produces a light green color.
Does not produce sadness or great nervous disquietude.	Produces sadness and nervous disquietude.
Is unaccompanied by visceral neuralgia.	Is constantly accompanied by visceral neuralgia.

ANÆMIA	CHLOROSIS
Fibrin diminished in blood.	Fibrin increased in blood.
No special affection of solar plexus of nerves.	Pain, uneasiness or distress commonly referred to solar plexus.
Iron always does good.	Iron often increases discomfort.
Symptoms of ovulation will be noticed without menstruation.	Neither symptoms of ovulation nor menstruation will be observed.
The cause of disease being removed, patient will rapidly improve.	If supposed cause be removed, patient will often improve but slowly.

Chlorosis may exist in the male as in the female, though typical cases occur only in the female, but in both it occurs about the time of puberty, when the development of the ovaries and their analogues, the testicles, is attained, and they are capable respectively of secreting "matured ovules" and "fructifying zoosperms." Now, the progress of development in these organs is "under the control of the ganglionic system of nerves," which must, of course, at that time "be in a condition of excessive susceptibility," and it is, therefore, probable that in that state of nervous exaltation it frequently becomes affected in the female, more rarely in the male, with that train of symptoms which we term "chlorosis," and that, too, notwithstanding the existence in many cases of an appearance in other respects of vigorous, ruddy health; but we will let Dr Thomas express his ideas in his own words: "At the critical age of puberty, when a series of important and peculiar changes are being affected through the instrumentality of the sympathetic system of nerves, this system seems, in the female, to be liable to a morbid influence, which, in great degree, paralyzes it, and impairs its functions. Sadness, nervousness and irascibility mark its onset; then neuralgia develops itself in the limbs, the head and the viscera; the appetite is impaired, digestion becomes weak, and dyspepsia, flatulence and depraved tastes are encountered. The young girl craves the most unpalatable and innutritious substances, as, for example, chalk, clay, slate, and other substances of alkaline character; while, at other times, the taste prompts her to consume acids, as vinegar, lemon-juice, pickled vegetables, &c. Usually, the process of blood-making is disordered, and anæmia sets in, coincidently with amenorrhœa, constipation, palpitation of the heart, sensitiveness along

the spine, distress in the solar plexus of nerves, coldness of the hands and feet, and irregular and excessive flushing of the face

"Upon pressing along the spine, a point of great sensitiveness will be found near the seventh cervical vertebra, and others are often discovered above and below this. Auscultation reveals a loud, basic systolic cardiac murmur, and along the arteries the bruit de souffle can be detected."

We have little hesitancy in adopting Dr. Thomas' views on this subject, as upon most others to which he has given his thoughtful attention. A bold and strong mind in the determination of truth, are associated in him with a clearness of statement and graphic power in description, that eminently qualify him to instruct. We therefore very cordially recommend his book to all who wish to pursue this branch of study. T. S. L.

PHYSICAL DEGENERACY. By Nathan Allen, M. D., of Lowell, Mass. (Reprinted from the Journal of Psychological Medicine.) New York: D. Appleton & Co. 1870.

THE PHYSIOLOGICAL LAWS OF HUMAN INCREASE. By Nathan Allen, M. D., of Lowell, Mass. (Extracted from the Transactions of the American Medical Association.) Philadelphia: 1870.

DR. ALLEN seems to take a very gloomy view of the future of the American people. That we are living too fast, that we keep ourselves under too constant a strain is a very prevalent idea; but that we are coming to such speedy destruction as Dr. Allen indicates, we think few will be prepared to admit. He sets out with the assertion that, "the human body in its normal or most healthy state, may be compared to a perfect machine made up of a great variety of parts, each part performing its own work and not interfering with that of the others, so that the wear and tear will come upon all parts of the machinery alike."—an analogy, the propriety of which we shall not deny. He divides this "machine" into four compartments or "temperaments," *the nervous*, comprising the nervous system, the *sanguine*, consisting of the circulatory apparatus, the *bilious* composed of the organs of digestion, and the *muscular* formed of the muscles, bones, etc. Undue preponderance of either of these temperaments threatens the integrity of the machine, which, like the deacon's chaise, should be made equally strong in all its parts.

These views, no doubt, will impress all with their clearness and originality.

The main idea attempted to be enforced is, that we are too intent upon the cultivation of our nervous "temperament" to the neglect of the others, and that, in consequence, we are rapidly driving towards a state of great physical degeneracy. The statistics, with which Dr. Allen fortifies his views, we are not prepared to admit as by any means conclusive. Until we can find something more definite as to the proportional death rate, and the average of health between the laboring and the presumed effeminate classes, we must continue sceptical as to the injurious effects of civilized life. Dr. Allen draws largely from the statistics of the war as to the height and weight of soldiers from the different States; we should like to have had some figures to prove the inferiority of city men, and of those from the upper classes of society, who, in our observation, were amongst the best of our soldiers, enduring all the hardships of the campaign fully as well, if not better than, those from the country accustomed all their lives to manual labor. The very common opinion that the working classes are more hardy, and freer from diseases than those who lead a more luxurious life is, to our mind, far from sustained by the facts.

Arguing from the statistics of Massachusetts, Dr. Allen finds that the proportion of births is steadily diminishing, which he accounts for on the theory that the men and women of the country are physically degenerating, from undue cultivation of the nervous system. There are too many other causes to account for the diminished birth rate to give this argument much force. The one fact that marriage is not so attainable as it was a hundred years ago, and is put off to a later age than formerly, has no doubt much to do with the aggregate small number of births, as well as the fewness in each family. Before theorizing as to the causes of degeneracy, we think it would be more profitable to first clearly establish the fact that degeneration is taking place. From the earliest times men have been prone to fancy themselves less than their forefathers in physical strength and endurance, and to speak of the degeneracy of the times, and the effeminacy of the upper classes. On a late occasion we gave some strong arguments based upon the observations of Dr. Duncan and others, [July No.] proving that the increase of insanity

bears a direct proportion to the poverty of a community. We cannot but think that closer observation will show that the alleged ill effects of civilization are very greatly exaggerated, and that its tendency is to conserve health rather than impair it, both in the individual and the community.

THE TRANSACTIONS OF THE AMERICAN MEDICAL ASSOCIATION. Instituted 1847. Vol. XXI. Philadelphia: Collins, printer. 1870.

THE present volume of the transactions of the American Medical Association contains several papers of interest, but, like its predecessors, has much that simply encumbers and could well have been omitted. The manner in which the articles are chosen is bad. The sections are too prone to pass to the Committee of Publication—who have no powers of revision other than the mere correcting of proofs—papers that would make a passable show in a medical journal, but which are entirely unworthy a place in the printed transactions of the chief medical society of the United States. In the hurry of a four days' session, it is impossible to properly consider the matter brought before the sections and make a judicious selection for publication. We shall notice the more interesting of these papers at another time.

CORRESPONDENCE.

LONDON, *November 23d, 1870.*

Editors Baltimore Medical Journal:

GENTLEMEN: Hoping they may prove interesting to some of your readers, I have been tempted to send you the following jottings and impressions in the London Surgical World:

As my time has been principally occupied at Moorfields Ophthalmic Hospital, I have not seen as much general surgery as I should otherwise have wished. I have, however, attended, more or less frequently, the clinics of most of the celebrated London surgeons, and with great interest watched their operations.

At St. Bartholomew's (the richest and oldest hospital in London) there is a large staff of surgeons headed by Mr. Paget. Here a most instructive practice is in vogue. Upon certain days in each week all of the surgeons meet, and hold public consultations over the most important cases. It was at one of these that I saw the other day, a case well worth recalling. The patient, a stout looking young man, presented a well marked syphilitic rash, and had suffered from sore throat. The history was this:

Three months before he had been vaccinated. The sore produced by the vaccination had never healed, and presented now an indurated and specific character. The constitutional symptoms had followed upon the vaccination.

What care had been taken in the vaccination, whether only the pure lymph had been used, or whether this precaution had been overlooked could not be ascertained, but that it had been the means of inoculating the patient with syphilis there could be no doubt. I have seen Mr. Paget perform several important operations, among others a Choparts' amputation. He operates very handsomely and dispenses with unnecessary flourishes.

In Mr. Paget's wards one sees in use a somewhat modified form of the anterior splint. It was modified and introduced to St.

Bartholomew's by Dr. Hodgen, of St. Louis. In my perhaps not unprejudiced judgment, the modification has only detracted from its original merits. And I think Mr. Paget will be convinced of this when he has tried the original splint; the construction and principles of which I have explained to him. In this connexion I would remark, that the anterior splint has been quite extensively introduced in practice in the Military Hospitals in France, since the commencement of the present war, by Drs. Tilghman and May, of Baltimore, who are connected with the "Anglo-American Ambulance Corps," and have been in constant service since the battle of Sedan. They tell me it has been most favorably received, and that they have furnished a number of them to the Prussian surgeons.

Perhaps no feature of the great London hospitals is more striking than the cleanliness and purity of their numerous wards. And this is more remarkable when it is remembered that many of them are more than a hundred years old. They have a common system of ventilation, which, though primitive and lacking many of the modern improvements, is most effective. In each ward, you see one or more open fire places, in which a good bright fire is kept up, while plenty of fresh air is allowed entrance through open doors and windows.

At "King's College Hospital," I saw Sir Wm. Ferguson operate. He is considered, I believe, the finest operator in London. Unfortunately he only performed on two cases of "cleft palate," so that the lookers on could see but little of what was being done.

Last week I saw Mr. Erichsen perform several operations at "University College Hospital," among others, a double flap amputation of the thigh. He performed it very handsomely and with great celerity. Of course there was rather a redundancy of muscle left. The carbolic acid treatment, more or less modified, seems to be in general favor. Mr. Erichsen washed out the stumps with carbolized water, and applied a very simple dressing of lint wet with it. Mr. Paget closed the stump after his Chopart most accurately, with dressings soaked in a solution of carbolic acid in oil, and said, if all did well, he should allow it to remain so for a week.

I have not yet seen Mr. Spencer Wells perform ovariotomy, but

hope to do so in a few days. He tells me he has operated on *fourteen* cases since the beginning of October, and had but *one* fatal result.

At the Throat Hospital I have seen many interesting cases under Dr. Morell Mackenzie; especially some cases of bronchocele, which were being successfully treated. In the fibroid variety he employs setons in different parts of the tumor, which produce suppuration, and finally cause its diminution and dispersion. In the crystic form he uses irritant injections with a like result.

Dr. Mackenzie has lately written a work on "excision of growths from the larynx," which he will shortly publish simultaneously in England and America.

At Moorfields Hospital is concentrated most of the ophthalmic talent of London as well as the material for practice. Its list of surgeons includes Messrs. Bowman, Critchett, Hutchinson, Halke, Wordsworth, Streatfield, Lawson, Wells and Cooper. Two or more of them with their assistants, attend each morning, and see from two to three hundred out patients, besides a number of hospital cases. Operations are performed each day, and many interesting ophthalmoscopic cases are selected for general examination. Perhaps one of its greatest advantages is the opportunity presenting for comparing the practice and results of the different surgeons. For although in the main their practice is similar, it often differs considerably in detail. And in no branch of surgery are details (which at first sight appear trivial) more important, than in that of the eye.

Thus, in the extraction of hard cataract, all the surgeons at Moorfields agree, as a rule, in adopting Graefe's linear extraction, although they differ considerably in the details of the operation, some preferring Weiss' stop-speculum, others Noyes'; one Beer's knife, while most use Graefe's. Some make the section in the sclero-corneal junction; some well behind this. Mr. Lawson, who has very good results and seldom loses the vitreous humor, begins in the sclerotic and ends well in the cornea, making rather a small iridectomy. I think, from what I have seen, I may safely say that as you make your section farther from the sclero-corneal junction and nearer the attachment of the iris, you increase the danger of loss of vitreous humor without gaining a sufficient compensation by the

increased size of the section. If the latter point is indicated, it is better gained by making the section embrace more of the circumference of the anterior chamber. But even as to the advisability of performing Graefe's extraction at all, there is some difference of opinion among the leading oculists of London. Thus, Mr. White Cooper and Mr. Haynes Walton still prefer the old flap, and the latter condemns Graefe's operation in the strongest terms. Prof. Liebreich, who, being a German, has sought London as a place of refuge during the war, and who has been a great deal at Moorfields, prefers still another form of extraction, which certainly has its advantages. He makes a lower linear section, commencing in the sclerotic and ending well in the cornea. He then makes a very small iridectomy, excising, as nearly as possible, only the pupillary border of the iris. Having removed the speculum, he next lacerates the capsule, and finally expels the lens by means of pressure through the upper lid. He says that vision is as perfect with this small iridectomy downwards as with Graefe's large iridectomy upwards; that the operation is much easier to perform than Graefe's, and that there is less danger of loss of vitreous humor.

For several months before he left Paris he had been performing this operation without an iridectomy, and had obtained very good results. But he was not yet prepared, from the limited experience he had had, to decide definitely upon the advantages of this modification.

Mr. Bader, of Guy's, has lately devised an operation for conical cornea, which seems to give excellent results. It is especially applicable in those cases to which Graefe's operation is least suited —cases of extreme conicity, with very great thinning of the cornea. In such cases he passes a fine curved needle, armed with a silk thread, through the cone, at some distance from the apex. Allowing the needle to remain in this position, he next removes with a knife, or knife and scissors, an elliptical piece, embracing the whole thickness of the cornea at the apex of the cone. The needle is then drawn through and the edges of the wound closed by means of the thread. The cornea may be somewhat puckered at first, but this passes off as the wound cicatrizes. A central leucoma will be left, and an artificial pupil must subsequently be made. Mr. Bader showed me a case in which this operation had been done with most

MISCELLANEOUS.

New Operation for Erectile Tumors.—At a recent meeting of the Belgian Academy of Medicine, M. Michaux gave an account of a new mode of procedure he had adopted for the treatment of erectile tumors. During the thirty-four years that he has been engaged in teaching clinical surgery at Louvain, he has had abundant opportunities of putting the various modes that have been recommended, from time to time, into force, and has communicated the results to the Academy. The present plan, which he regards as preferential to all others, consists in a combination of Guersant's *cautérisation actuelle parcellaire* with the employment of the perchloride of iron. He had heretofore frequently had recourse to this mode of cauterization, and found himself obliged to have recourse to the perchloride in order to arrest the hæmorrhage which ensued on the cauterization. He soon, however, remarked that this application contributed greatly to the cure of the tumor, and therefore he resorted to its use in cases in which the cauterization gave rise to no bleeding.

"At the present time this is the way in which I treat erectile tumors, whatever may be their description, seat or size: With one of Guersant's needles, heated to whiteness, a track is practiced on the tumor, either directly or by piercing the skin at a certain distance from it. Several needles may be placed in the same track, but that is not indispensable. As soon as the cautery is withdrawn, I substitute for it tents of charpie, soaked in perchloride of iron, and prepared beforehand. I thus plug the aperture until no more blood flows, and leave the charpie *in situ* until suppuration is well established. I then replace these tents by others, taking care to increase the detachment, and repeat this dressing every day or every other day, according to the amount of suppuration. In this way I destroy entirely the erectile tissue, invading it in every direc-

tion with the charpie soaked in the perchloride. If the tumor is very large, several punctures may be made; and if cutaneous arterial spots (*taches*) persist, they may be painted with the perchloride or cauterized by Guersant's needle."

M. Michaux observed, in conclusion, that the practice was a certain one, unattended with danger, and easy of execution, while the same results are not obtainable either by using the caustic alone or by the injection of the perchloride—this last being sometimes dangerous by producing gangrene.—*Med. Times and Gazette.*

Subcutaneous Injection of Bubo.—Dr. Wertheim, attached to the syphilitic and skin department of the Rudolph Hospital, Vienna, states that he has given up all attempts at dispersing buboes by causing their absorption, and now treats them by a simple and efficacious procedure—subcutaneous injection. A solution of various substances, as morphia, camphor, sulphate of copper, etc., may be used as circumstances require, muriate of morphia (gr. iv. aquæ dr. ij) being that which is usually preferable. The ripe abscess is punctured by means of a thick needle, or the tube of a strong Pravaz syringe; after most of the pus has been gently pressed out, the injection of eight or ten drops of the solution is practised, the patient being taught himself to empty every three hours the fluid that may have collected. The injection is at first repeated daily, and after, at longer intervals. Although not essential, it is better for the patient to keep in bed. The advantages of the method are that the pain in the abscess almost immediately ceases, and the other inflammatory symptoms steadily diminish; the thickened pus is gradually transformed into a thinner and thinner exudation, gradually decreasing in quantity, and in three or four weeks it ceases entirely, and no cicatrix remains. The secretion of pus is confined to the spot, and the surrounding induration gradually diminishes.—*Lancet.*

Dangers of Chloral-Hydrate,—Thus far the new soporific appears remarkably exempt from the unpleasant after-effects attaching to opium, chloroform, and other agents of the class, and still more remarkably free from noxious results in large doses. But it is wrong to assert its harmlessness. We know of one case at least in

San Francisco in which alarming narcotism resulted from a large dose; the patient, a young man, passing several hours in a deeply comatose condition. The journals record the case of a man in Guy's Hospital, with thoracic aneurism, who took thirty grains to allay pain and procure sleep. He became unconscious, with lividity and coldness of the face and hands, and respiration only at long intervals, death seeming imminent for five hours. Dr. Habershon remarks, in commenting on this case, that chloral tends to cause bronchial and pulmonary congestion, through its action on the pneumo-gastric nerve, and that it should not be given where embarrassment to respiration is liable to occur. Other cases begin to be reported, illustrating its toxic effects in large doses. As its use extends, such cases will multiply. Valuable as it is, beyond all doubt, the discreet and conscientious practitioner will not administer it recklessly, and without fear of consequences. It is wrong to claim for it a harmlessness which belongs to no active remedy ever yet discovered.—*Pacific Medical and Surgical Journal.*

Chloral Hydrate Nostrums.—The great success and the growing popularity of that valuable remedy, hydrate of chloral, have led to the putting up for sale of nostrums called "Syrup of Hydrate of Chloral," "True Chloral Anodyne," "Elixir of Chloral," "Solution of Chloral Hydrate," etc. Now it is important that physicians and all others interested should understand that the new agent cannot be mixed with syrup or other aqueous or spirituous bodies, without soon undergoing spontaneous change, which renders it comparatively worthless as a hypnotic. What the nature of this change is we do not well understand at present. We have specimens of the aqueous solution and syrup prepared two months ago, which have undergone important modifications. In crystalline form, in well-stopped vials, the substance keeps perfectly well, and in this form it is probably permanent. If the nostrums just mentioned contain any of the agent, they are worthless, and may be dangerous.

Physicians should prescribe only the crystals, and should be very certain *that they are pure.* The taste of hydrate of chloral is quite unpleasant, but orange-juice completely covers it, and so does peppermint water and essence of peppermint. If taken in aqueous

solution, let the patient be directed to suck the juice of an orange immediately after swallowing the dose, or mix with the solution a little peppermint water, with syrup of tolu. The following is a good formula:

Take	Chloral hydrate	℥ i
	Aq. menth. pip	℥ ½
	Syrup tolu	℥ ½
	Aqua	℥ ij

Dose from one-half ounce to two ounces, as may be required.

The mixture should not be prepared in large quantities, nor be kept for any length of time, for the reasons intimated above.

[*Boston Journal of Chemistry.*

Treatment of Acne by the Internal Administration of Glycerine.—It appears to be well established that the modes of elimination of medicines are fixed and definite; thus the kidneys eliminate the neutral salts; the bronchial mucous membrane and the sudoriparous glands, volatile substances; the biliary ducts, metals. By inductive reasoning, the sebaceous glands serve as channels for the elimination of the fats. M. Gubler has endeavored to verify this hypothesis by clinical experiment, and the following fact appears to confirm it:

A young girl affected with acne punctata, which had resisted various methods of treatment, such as borax and glycerine, applied topically, was at length treated by the internal administration of glycerine, in the dose of two dessert-spoons per diem, in the hope that this substance, so analogous to the oils, would, like them, follow the ordinary modes of elimination, and in traversing the sebaceous follicles, would modify their secretion, rendering their products more fluid. The result supported the theory. From the day that the remedy was first taken, the pustules diminished in volume and number, and soon disappeared altogether. The bowels, which had previously been costive, were rendered open and regular, though the glycerine by no means acted as a purgative. Mr. Gubler suggests its use in cases where the cerumen has accumulated in the ear.—*Lyon Médicale, 1870.*

Vinum Aloes in Ulceration.—Dr. Nathan, in the "Medical Times and Gazette," recommends as a most valuable remedy for indolent ulcers the local application of wine of aloes. It should be applied

on lint, covered with oil silk, and each dressing should be permitted to remain on for twenty-four hours. Its primary object is to increase the discharge, which may be gently sponged from the surrounding integument, taking care never to touch the surface of the ulcer; and during the healing process no other applications should be employed. It is said to produce rapid cicatrization in cases where most of the ordinary applications have either been very tardy in their effects, or else have failed.

Reproduction of the Spinal Cord in the Frog.—MM. Masius and Van Lair (*Month. Micros. Jour.*, May 1, 1870, p. 236) have recently removed sections of the spinal cord, from one to two millimetres in length, from frogs. Only those experiments were successful which were made during the winter—that is, from November to the end of February; and little frogs, full of life, were selected, great age seeming to interfere with the results. It was found that at the end of six months the healing was complete, and all the functions had returned in the following order: First the spontaneous fibrillary movements in the thighs, then voluntary movement of the whole of the thigh, extending gradually to the knee and the foot. The perceptive sensibility only appeared more slowly, and sensibility and the power of reflex motion were the last to present themselves. The autopsy and the microscopical examination of the reproduced portion showed that the end of the cord in front of the section was a little swollen, as in the case of nerves that have been divided; the posterior end was rounded, and between the two ends there was a substance, at first gelatinous, in which they found multipolar nerve-cells, and nerve-fibres in the form of Remak's fibres and varicose fibres. The cells appeared before the fibres. They found also, in this gelatinous mass, and in the two ends of the cord near the point of section, nerve-cells in a state of pigmentary degeneration.—*Medical Times.*

Bromide of Potassium in Epilepsy —At the recent meeting of Medical Superintendents of the Insane, the efficacy of bromide of potassium in epilepsy was discussed at some length. There was great diversity of opinion expressed; while some had great confidence in its beneficial influence, and even adduced cases which they claimed as cures, others asserted that they had given it a thorough trial, and were always disappointed in the results.

EDITORIAL.

TO THE PATRONS OF THE BULLETIN.

CIRCUMSTANCES of a private nature have constrained me to sever my connection with the "Bulletin." Hereafter it will be combined with the "Baltimore Medical Journal," and published under the management of Drs. Howard and Latimer, the able editors of that periodical. These gentlemen will fulfil all of my contracts, alike with subscribers and advertisers, so that no pecuniary loss can accrue to either. The "Bulletin" has been one of the most successful journals ever published in this country. It has sustained itself from the start; and it is now turned over to my successors with a subscription list upon which there are the names of nearly seven hundred *bona fide* subscribers. Of the manner in which it has been sustained by the advertising community, it is only necessary to say that nearly enough money was realized from this source during the past year to defray the expenses of its publication. It has also been most kindly received and treated by the editorial fraternity generally, as its splendid array of exchanges most conclusively establishes. To all who have contributed to this success I am most truly thankful, and shall ever remember them with gratitude and affection. They have sustained me most liberally, and I shall hold myself prepared to serve them in return, at all times and to the fullest extent of my ability. In parting from them, I can only say, that the journal which will be furnished them, instead of mine, will be worthy of their fullest confidence and most generous support. Its editors are gentlemen of science, ability and

high character, qualified in every particular for the work they have undertaken, and prepared to do far more justice to my patrons than I was able to render them.

Let me express the most earnest hope, that the friends of the "Bulletin," will continue to sustain this new enterprise, and that its editors may find them as considerate and as liberal in all things as I have.

EDWARD WARREN, M. D.

IN bringing to a close the first volume of "The Baltimore Medical Journal," and summing up the results of the year, the editors and publishers are not without good grounds for self-gratulation. It has been said that Baltimore never has encouraged or sustained periodical publications; it is yet too early to boast of having succeeded in establishing upon a permanent and satisfactory basis a Medical Journal here, but the support which this journal has received, and the constant increase in its subscription list, warrant the belief that it will be a success. To the practitioner who would keep pace with the rapid advances of medical science, journals are a necessity. They give him the fresh thoughts of the day, the practical facts as they are found. Many of our best men, engaged in laborious practice, never find the time to write books, and must record the result of their observation and experience through the columns of a journal, or be content to live, and work, and die, and leave to the world nothing but the memory of their names. Hence a medical journal must be eminently practical; it is from, and to, the workers of the profession, rather than the theorizers. Throughout the section of our country in which this journal chiefly circulates, there are men as capable of observing and recording the interesting facts which practice reveals, as any in the land. To such, a channel is offered for communication with the world. To such it is a duty to support a local journal.

Having consolidated the two medical periodicals which have been so well sustained separately, it is presumable that the new journal will not lack a full share of interesting papers. It is the desire of the publishers to increase the size of the "Journal" and add several improvements, which can only be accomplished by an increase in its subscription list, and a more ready supply of articles for publication. A little effort on the part of its patrons can secure these results; and an earnest appeal is made for their assistance. The editors will do all in their power to make the journal more worthy the confidence and support of the profession. To all those who have so generally aided them in the past, they return their warmest thanks.

E. LLOYD HOWARD, M. D.
T. S. LATIMER, M. D.

BALTIMORE, *December* 9, 1870.

Messrs. Editors: In your October number appeared an "editorial" which reflected severely upon our medical schools, and upon one, at least, in my humble opinion, unjustly. I will preface my remarks by stating that I have *no connection whatever* with either of our colleges, and may, therefore, bear impartial testimony. I am a graduate of the time-honored university of our State, of nearer twenty than ten years' standing, and may, therefore, also claim some ability to judge the merits of the professors and the character of the instruction they impart. Having attended some of the lectures, both didactic and clinical, (and renewed certain painful impressions *a posteriori*, which I had hoped time had obliterated,) I unhesitatingly say that I have never listened to men who were more capable of fulfilling the duties they have assumed, nor who were more earnest in their desire of instructing the young men who are qualifying themselves for future pro-

fessional usefulness. It was my good fortune to be a student when the lamented Roby filled the chair of anatomy, who was justly considered the most interesting and instructive teacher among the faculty of that day, and yet, without detracting from the eminent abilities of Professor Roby, on the one hand, or desiring to flatter the present occupant of that chair, it is but justice to say that the position is, in every respect, as ably filled as then. So also with the other professors whose lectures I have heard; they all seem animated with zeal both to acquire and impart the progressive knowledge of the day; they are painstaking in their endeavors to make the abstruse facts so often required to be taught as intelligible to the student as it is possible to make them, while they omit nothing that labor or money can procure to render their instruction as full and complete as it can be given in any school in the country. A larger nor more varied amount of clinical material I have never seen collected in the wards of the Infirmary, while the dispensary system, which has of late years been added, affords an almost unlimited variety of diseased conditions to be exhibited and explained to the learner. I have, indeed, been most favorably impressed with the energy and activity displayed in all the various departments, and I entertain the most sanguine expectations of the future of our venerable "alma mater."

In this connection I would also bear testimony to the urbanity and kindness with which the faculty welcome members of the profession to their halls, and to the interest they display in explaining and rendering assistance in difficult or obscure cases that medical men meet with; thus showing a desire to make the University of Maryland, as she should be, the centre of all the professional interests of the State.

If the students display anything like the energy and zeal animating their teachers, they cannot fail to make vital

progress. And now one word in regard to your strictures upon medical students: After reading your article, I looked around upon the students while listening to a lecture from one of the professors, and I thought your remarks were equally as unjust and unmerited here as in the other instance. They were certainly a very intelligent looking body of men, fully equal to an average class, and they seemed to realize that "art is long and time is fleeting," and to be intent on profiting by the instruction so ably given them. I have also had opportunities, by personal acquaintance and intercourse with several of them, to become acquainted with their acquirements in the several branches, and I can but say they are as well *posted* as any other under-graduates I have ever come in contact with.

Not wishing to prolong this article, though I have not begun to do justice to the subject, I hope you will insert it in your columns, as in simple justice to both professors and students, and also to let the entire community know that students can be as well and as fully instructed in *all* the branches of a medical education in Baltimore as in any other city of our country.

IATROS.

IN the editorial above referred to it was not our purpose to disparage the Baltimore medical schools; we believe them superior to four-fifths of the medical schools in the country, and fully equal to most of the remainder; and it is certainly our desire to see them flourish in every respect. We hold that the chairs are generally filled by men with every qualification for wise instruction. We have listened to the several professors with both pleasure and profit, and are perfectly conscious we might continue to do so for some time to come; but still it will scarcely be contended that either of the schools is faultless, that either of them is the best in

the land, or is even equal to the best. Now, why are they not first? Have we not, as Marylanders, a right to expect them at least to enter for the first prize? Shall we expect to win races by simply declaring our superior qualification, and loudly maintaining it in the very face of defeat? Would not a manly recognition of our faults and a rigorous system of training tend more largely to secure that success which we all covet—no one more than the editors of this journal—and are equally anxious should redound not only to the advantage of the schools, but also to the honor of the State and of the entire profession. Medical education is most imperfectly conducted throughout the States, but we apprehend it is by each State directing attention to those defects which come under its immediate observation, and which it may in some measure be instrumental in remedying, that good is to be accomplished. Moral excellence is attained, not by a crusade against human wrong, but by the careful development of whatever antagonizes it in each household. If, then, we have found fault with Baltimore schools, it is not because we hold them to be peculiarly faulty, but because they are more properly members of our household. Why it is that Maryland schools, of whatever kind, do not succeed, is a question that must be asked, and must somehow get itself answered; and it behooves those under whose direction our educational system is, to find out the answer, and see whether there is death or life in it. We are not prepared with the answer, nor is the riddle properly one for our solution. But we believe there is an answer, and that in it is the germ of honorable prosperity. Our teachers, we have said, in the editorial complained of, are of ability and erudition, and *hence*, we have a right to expect that they will advance the literary standard of the State to a height not yet attained. Were it otherwise, we might recognize the propriety of quietly and sorrowfully folding our hands until a new generation gave new cause for hope-

fulness. If we can in any way coöperate with them in this good work, we will most cordially and zealously do it; but we do not conceive that it is to be done by endeavoring to conceal from ourselves and the outer world the fact of a difference. "Iatros" seems to be under the singular impression that our "strictures upon medical students" were directed against the medical students of Baltimore alone, which we beg leave to assure him was by no means the case. Our remarks were intended to apply to students throughout the States; nor have we any reason for supposing that the students at our schools represent a lower grade of intelligence than those elsewhere, or that the classes this year are at all inferior to those of previous years. We know but few members of the present classes, and can form no estimate of their relative ability. We made the broad general statement, that medical students as a rule have been, and are, totally disqualified for the vocation they have chosen. Without previous scientific training of any kind, they are as a body incapable of scientific pursuits, and herein do we find one great reason why medical science is ranked among the inexact sciences; so few of its votaries comprehend the first principles of scientific inquiry, and only vitiate, by inaccurate observations and illogical deductions, the conclusions of their more skilled and capable brethren. We say send three-fourths of them back to their homes; they are but dead weights upon the car of medical progress.

ATTENTION is called to the fact that the postage on this journal is only prepaid by the publishers when the subscription price is paid before the issue of the February No. That we may know how large an issue to print for the new year, and to insure the receipt of the Journal and Bulletin regularly, it is requested that the blank forms sent with

this No. be filled up and returned at the earliest day convenient.

A NUMBER of books and pamphlets are on our table, which we shall notice in the next number. We wish it distinctly understood that we never criticise books from specimen pages, and whatever books come to us shall be spoken of, just as we think their merits deserve. Some publishers seem to fancy they do us a great favor in sending their issues, for which we should make a corresponding return by favorable notices; we don't see it in that light.

WE regret to record the death of Dr. Wm. M. Post, of this city, which took place on the 3d of November in Sumter District, S. C. We had the good fortune to be associated with Dr. Post when a surgeon in the C. S. Army. After the war he settled in Baltimore, practicing his profession with credit and success. He leaves a large circle of friends, who warmly esteemed him for his many excellent qualities of both heart and head.

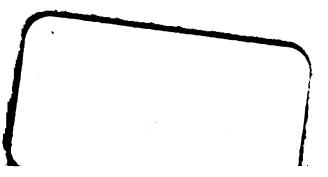
Died.—In Baltimore, on the 24th day of November last, Edward Warren, Jr., aged six years, the only son of Dr. Edward Warren and Mrs. Elizabeth C. Warren.

In Baltimore, on the 28th of November, Nannie, daughter of Dr. Thos. Opie, aged two years one month and thirteen days.

In Baltimore, on the 25th of November, Edward Norris, son of Professor Richard McSherry, in his tenth year.

WE find upon our books the names of many who have not yet paid their subscription for the year 1870. As we wish to settle up all accounts before the New Year, we earnestly request that they will remit promptly.





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